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DRAFT FINAL

CONTINGENCY PLAN
ROCKY MOUNTAIN ARSENAL

VOLUME II

ATTACHMENT A: CHEMICAL ACCIDENT/INCIDENT RESPONSE PLAN

ATTACHMENT B: INSTALLATION SPILL CONTINGENCY PLAN

December 1990

Prepared for

PROGRAM MANAGER

ROCKY MOUNTAIN ARSENAL

Submitted by

Hazardous Waste Remedial Actions Program
Oak Ridge, Tennessee 37831
Managed by MARTIN MARIETTA ENERGY SYSTEMS, INC.
For the U.S. DEPARTMENT OF ENERGY under contract DE-AC05-84OR21400

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13. ABSTRACT (*Maximum 200 words*)

THE CONTINGENCY PLAN (CP) IS DESIGNED TO:
1. MINIMIZE HAZARDS TO HUMAN HEALTH AND THE ENVIRONMENT FROM FIRES, EXPLOSIONS, OR ANY UNPLANNED RELEASE OF HAZARDOUS SUBSTANCES
2. PROVIDE THE PROCEDURES FOR APPROPRIATE EMERGENCY RELEASE NOTIFICATION.

VOLUME I: CONTAINS THE CONTINGENCY PLAN WHICH INCLUDES DISCUSSIONS OF:
1. INCIDENT DISCOVERY AND REPORTING
2. INSTALLATION RESPONSE TEAM ACTIVATION
3. RESPONSIBILITIES OF THE INSTALLATION RESPONSE TEAM
4. VERBAL NOTIFICATION OF OFF-POST GROUPS
5. REQUIRED WRITTEN REPORTS AND RECORDKEEPING
6. EMERGENCY EQUIPMENT
7. EVACUATIONS.

VOLUME II: CONTAINS THE CHEMICAL ACCIDENT/INCIDENT RESPONSE PLAN AND THE INSTALLATION SPILL CONTINGENCY PLAN.

14. SUBJECT TERMS

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This Contingency Plan (CP) applies to all Army personnel, civilian employees, Army facilities, Army contractors, Army contractor facilities, tenants, and tenant facilities located at the Rocky Mountain Arsenal.

The CP is designed to minimize hazards to human health and the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous substances or oil to air, soil, surface water, or ground water, and to provide the procedures for appropriate emergency release notification.

The CP is comprised of four volumes. Volume I contains the CP. In Volume I, the most important information has been summeried in a box at the beginning of each section. Subsequent volumes contain attachments to the CP. Volume II contains Attachment A - Chemical Accident/Incident Response Plan and Attachment B - Installation Spill Contingency Plan. Volume III contains maps (Appendix J of Attachment B) of the various potential spill sites. Volume IV (in preparation) will contain contractor site-specific contingency plans. The attachments are integral parts of the CP, and provide specific response information based upon the type of incident or the site/facility involved.

The CP is formatted with a page, figure, table, and plate numbering system that permits the reader to determine his location within any volume, attachment, or appendix of the CP. Pages are numbered sequentially by subdivision as follow: volume number (upper-case roman numeral) - attachment letter (upper case) - appendix letter (upper case) page number (arabic or lower-case roman numeral). Example: II-B-C1 = first page of Appendix C to Attachment B in Volume II. Volume and page number, separated by a dash, are always present; attachment and appendix letters are present as appropriate. Figures, tables, and plates are numbered sequentially by subdivision following the same scheme as paging, except the appropriate descriptor (Figure, Table, or Plate) precedes the number, and a period precedes the sequential arabic numeral. Examples: I.3 = the third figure/table/plate in Volume I; II-A.4 = the fourth figure/table/plate in Attachment A in Volume II.

DISCLAIMER

This document was originally prepared by IT Corporation in 1984 and was updated by the United States Army Environmental Hygiene Agency in January 1989. These reports, together with other information, were provided by Program Manager Rocky Mountain Arsenal (PMRMA) and compiled by Engineering-Science, Inc. However, information was not confirmed by onsite inspections of the facilities. In addition, key pieces of information to be supplied by PMRMA are under development.

EMERGENCY RESPONSE

THE FIRST STEP IN ANY EMERGENCY IS TO CALL THE ROCKY MOUNTAIN ARSENAL FIRE PREVENTION AND PROTECTION BRANCH (FPPB) AT 289-0223 OR 289-0224. If FPPB staff are unavailable, call the Law Enforcement and Security Branch at 289-0372. The FPPB will provide first-response actions in all emergency situations and will contact The Law Enforcement and Security Branch to initiate notification of key emergency personnel.

DOCUMENT ORGANIZATION

VOLUME NUMBER	TAB COLOR	DOCUMENT
I	Red	**Contingency Plan**
II	Blue	**Attachment A: Chemical Accident/Incident Response Plan**
	Yellow	**Attachment B: Installation Spill Contingency Plan**
		Appendix A Site-Specific Action Plans Appendix B Spill Response Procedures Appendix C Emergency Response Equipment Appendix D Outside Assistance Appendix E Hazardous Substance Reportable Quantities Appendix F Training Appendix G Safety Precautions for Known Hazardous Substances Appendix H Public Affairs Guidelines Appendix I References
III	Yellow	**Attachment B: Installation Spill Contingency Plan**
		Appendix J Maps
IV (In Preparation)	White	**Attachment C: Contractor Site-Specific Contingency Plans**

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ACRONYMS/ABBREVIATIONS

AAF - communications network prefix
ADCOM - Adams County Mutual Aid
AFFF - aqueous film-forming foam
AMC - U.S. Army Materiel Command
AMC/DA - Army Materiel Command/Department of the Army
AOC - Army Operations Center
AR - Army Regulation
ARCHIE - Automated Resource for Chemical Hazards
AST - aboveground storage tank
CAI - Chemical Accident/Incident
CAIR - Chemical Accident/Incident Response
CAIRO - Chemical Accident/Incident Response Officer
CAMEO - Computer Aided Management of Emergency Operations
CDH - Colorado Department of Health
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CFR - Code of Federal Regulations
CHEMTREC - Chemical Transportation Emergency Center
CHRIS - Chemical Hazard Response Information System
CP - Contingency Plan
CRS - Colorado Revised Statutes
CWA - Clean Water Act
CWHA - Central Waste Handling Area
DCPD - Dicyclopentadiene
DDT - Dichlorodiphenyltrichloroethane
DOD - Department of Defense
DODES - Division of Disaster Emergency Services
DOM - Daily Operations Manager
DOT - U.S. Department of Transportation
DRMO - Defense Reutilization and Marketing Office
ECC - Emergency Control Center
ECCT - Emergency Control Center Team
EOD - Explosives Ordnance Detachment
EPA - U.S. Environmental Protection Agency
ERT - Emergency Response Team
FAMC - Fitzsimons Army Medical Center
FDOIC - Fire Department Officer in Charge
FEMA - Federal Emergency Management Agency
FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
FPPB - Fire Prevention and Protection Branch
FWPCA - Federal Water Pollution Control Act (a.k.a. Clean Water Act)
GAC - granular activated carbon
GB - Nerve Agent, Sarin
gpm - gallons per minute

ACRONYMS/ABBREVIATIONS (Continued)

H - Mustard blistering agent
HASP - Health and Safety Plan
HDPE - high-density polyethylene
HMIS - Hazardous Materials Information System
HSWA - Hazardous and Solid Waste Amendments
IOSC - Installation On-Scene Coordinator
IRA - Interim Response Action
IRT - Installation Response Team
ISCP - Installation Spill Contingency Plan
JARDF - Joint Administrative Record and Document Facility
LEPC - Local Emergency Planning Committee
MEK - methyl ethyl ketone
MSDS - Material Safety Data Sheet
NCP - National Oil and Hazardous Substances Pollution Contingency Plan (a.k.a. National Contingency Plan)
NE - Northeast
NEPA - National Environmental Policy Act
NFPA - National Fire Protection Association
NIOSH - National Institute for Occupational Safety and Health
NOAA - National Oceanic and Atmospheric Administration
NOK - next-of-kin
NPDES - National Pollutant Discharge Elimination System
NRC - National Response Center
NSN - national stock number
OSHA - U.S. Occupational Safety and Health Administration
PAO - Public Affairs Officer
PCB - polychlorinated biphenyl
PL - Public Law
PMRMA - Program Manager Rocky Mountain Arsenal
POL - petroleum, oils, and lubricants
PPE - personal protective equipment
ppm - parts per million
psi - pounds per square inch
QA - quality assurance
QC - quality control
RCRA - Resource Conservation and Recovery Act
RI/FS - Remedial Investigation/Feasibility Study
RMA - Rocky Mountain Arsenal
RQ - reportable quantity
SARA - Superfund Amendments and Reauthorization Act
SOP - standing operating procedure
SPCC Plan - Spill Prevention, Control, and Countermeasure Plan
SPDA - South Plants Decontamination Area
STB - super tropical bleach
TCFA - Tri-County Fireman's Association
TIM - Technical Information Memorandum
TOD - Technical Operations Division
TSCA - Toxic Substances Control Act

ACRONYMS/ABBREVIATIONS (Continued)

U.S. - United States
USAEHA - United States Army Environmental Hygiene Agency
USATEU - United States Army Technical Escort Unit
USATHAMA - U.S. Army Toxic and Hazardous Materials Agency
USC - United States Code
USFWS - United States Fish and Wildlife Service
UST - underground storage tank

ATTACHMENT A

CHEMICAL ACCIDENT/INCIDENT RESPONSE PLAN

The Chemical Accident/Incident Response Plan, also called the Emergency Response Plan for Field Activity Discovered Chemical Agents, is currently under revision. Information contained within may be incorrect. Style and format is inconsistent with the rest of this Contingency Plan. Use this plan with caution.

COPY

#35

1. ROCKY MOUNTAIN ARSENAL
STANDING OPERATING PROCEDURE FOR:

2. ITEM: EMERGENCY RESPONSE PLAN FOR FIELD ACTIVITY DISCOVERED CHEMICAL AGENTS AT ROCKY MOUNTAIN ARSENAL (RMA)

3.a. OPERATION: EMERGENCY RESPONSE

3.b. ESTIMATED DAILY PRODUCTION RATE: ______

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5. SOP NO.: SF-50-1 DATE: 25 APRIL 1988

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6. AUTHORITY: AMC-R 385-131 AR 50-6 DATE: 9 OCT 1987 12 NOV 1986

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SMCRM-SF	Alma T. Harris	SAFETY MANAGER

SOP COVER SHEET

APPROVAL:

OFFICE	SIGNATURE AND DATE	TITLE
SMCRM-CO	Edward R Ettner 17 June 88 EDWARD R. ETTNER, JR.	COMMANDER, RMA

12. QUARTERLY REVIEW:

DATE	SIGNATURE	TITLE

SEMIANNUAL REVIEW:

DATE	SIGNATURE	TITLE

14. BIENNIAL REVIEW:

DATE	SIGNATURE	TITLE

(CONTINUED)

SUPERVISOR'S STATEMENT

SOP No. SF-50-1 REV No.______ CHANGE No._______ DATE__________

1. The Supervisor will sign this statement:

   a. When first assigned as supervisor of the operation;

   b. When an approved formal or interim change is made to the SOP;

   c. At least once per quarter during simulation exercises;

2. I have personally reviewed each of the operational steps of this SOP and have no question in my mind that the operation can be performed safely, efficiently, and in an environmentally acceptable manner. I have trained the operators in the details of their part of the operation and have instructed them to follow the SOP without deviation.

SUPERVISOR:

(1)____________________ ECC COMMANDER	________ DATE	____________ SIGNATURE
(2)____________________ TEU COMMANDER	________ DATE	____________ SIGNATURE
(3)____________________	________ DATE	____________ SIGNATURE
(4)____________________	________ DATE	____________ SIGNATURE
(5)____________________	________ DATE	____________ SIGNATURE
(6)____________________	________ DATE	____________ SIGNATURE
(7)____________________	________ DATE	____________ SIGNATURE
(8)____________________	________ DATE	____________ SIGNATURE

OPERATOR'S STATEMENT

SOP No. SF-50-1 REV No.______ CHANGE No.______ DATE________

1. The operator will sign this statement:

   a. When first assigned to the operation;

   b. When an approved formal or interim change is made to the SOP;

   c. At least once per quarter during simulated exercises;

2. I have read or have had read to me and understand the general and specific safety and environmental requirements, personnel limits, work description, and inspection requirements necessary to accomplish my operation. I have been thoroughly trained in, and am familiar with, my part of the operation and I agree to abide by these instructions throughout my assignment to the operation.

OPERATOR:

(1)		DATE	SIGNATURE
(2)		DATE	SIGNATURE
(3)		DATE	SIGNATURE
(4)		DATE	SIGNATURE
(5)		DATE	SIGNATURE
(6)		DATE	SIGNATURE
(7)		DATE	SIGNATURE
(8)		DATE	SIGNATURE

EMERGENCY RESPONSE PLAN FOR FIELD ACTIVITY DISCOVERED CHEMICAL AGENTS

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This SOP supersedes SMCRM-DC, DC-R-50-1, 13 May 87.

1. GENERAL SAFETY REQUIREMENTS

a. This SOP shall be available in the Emergency Control Center (ECC), Decontamination Truck, and other available places/areas as appropriate during this operation. All Emergency Response personnel shall maintain copies of this SOP and be responsible for carrying out its provisions.

b. There will be no deviation or change to this SOP without prior approval of the Installation Commander or his designated representative.

c. Care will be taken to limit exposure to a minimum number of personnel, for a minimum amount of time, to a minimum amount of hazardous material consistant with safe and efficient operations.

d. Personnel lifting material will use proper, safe lifting procedures, avoid twisting when lifting or carrying, and avoid sharp objects.

e. Protective Clothing and Equipment will be worn by all individuals as designated by their position of response.

f. No smoking, eating, or drinking should occur during this emergency response. (There may be some areas excluded, i.e., ECC.)

g. HEATSTROKE is a Medical Emergency. Immerse victim in cool water while waiting for the ambu'ance. Massage arms and legs to aid circulation. If unable t immerse victim, soak his clothing in water and rush him wet to a hospital. DO NOT TRY to give water to an unconscious victim.

NOTE: Prior designation of an Emergency Response Command Structure is highly recommended to avoid confusion and misdirection at the scene.

2. SCOPE. This SOP outlines the responsibilities for the RMA Emergency Response Team to follow whenever a chemical accident/incident occurs at this installation. This SOP will be added as an Appendix to the contractor's Safety and Health Plans.

3. RESPONSIBILITIES:

a. The Commander (Cdr), RMA, will:

(1) Be in complete command and control of all personnel, equipment, and procedures within the operational site.

(2) Provide appropriate level protective clothing for all emergency response personnel. [The source of supply is the ISSA (Intra Service Support Agreement) with Pueblo Army Depot.]

(3) Designate a Chemical Accident/Incident Response Officer (CAIRO) to conduct actions In Accordance With (IAW) this SOP. (When the Technical Escort Unit (TEU) are here, they will be the CAIRO.)

b. The CAIRO will:

(1) Initiate actions based upon this SOP to limit the spread of contamination and to prevent personnel becoming chemical casualties.

(2) Set up and control operations in and around the site from a mobile Command Post (CP) located upwind of the site at a safe distance based upon the particular circumstances of the accident/incident/occurrence.

(3) Determine the facts regarding the accident/incident/occurrence, and make appropriate recommendations as to response actions needed to the Cdr, RMA. Take actions as approved. In the absence of the Cdr, RMA, take actions considered necessary and appropriate.

(4) Advise and provide operational support to an AMC General Officer (On-Scene Commander) if one arrives at the Installation.

c. The Chief, Fire Department (Dept), RMA, will:

(1) Arrive on-site and assume full responsibility as the Assistant CAIRO (A/CAIRO) until arrival of CAIRO. Accomplish the immediate decontamination/treatment/evacuation of casualties from the site, and limit access onto the site to personnel needed for emergency response actions.

(2) Provide Emergency Medical Technician (EMT) and Firefighting/Rescue (FF/RS) teams to perform emergency response actions on site.

d. The Chief, Security Office, RMA, will provide security guards to establish Traffic Control Points (TCP) which will limit access of the site to persons needed for emergency response only.

e. The Chief, Technical Support Office (TSO), RMA, will:

(1) Provide chemical surety laboratory (lab) analysis on all suspect water and soil samples. Provide monitoring with bubblers for suspect contaminated equipment to determine if further decontamination is warranted prior to release.

(2) Provide results of analysis to the CAIRO for use at the operational site as soon as possible.

(3) Provide an individual to work with the Senior Quality Assurance personnel on the Downwind Hazard Monitoring Team.

(4) Provide a trained individual to operate the Downwind Vapor Hazard Distance (DWVHD) Calculator.

f. The Senior Quality Assurance (QA) personnel , RMA, will:

(1) Be the lead person for the Downwind Hazard Monitoring Team. (The other team members will be assigned at that time.)

(2) Provide training in the use of the M18A2 Chemical Detection Kit to members of the monitoring team.

g. The Director, Installation Services (DIS), RMA, will:

(1) Provide a two person monitoring team trained to monitor beyond the DWVHD downwind of an operational site.

(2) Provide downwind hazard monitoring outside the DWVHD downwind of an operational site.

(3) Provide on-site monitoring for chemical surety materials.

h. The Safety Manager, RMA, will report all accidents/incidents/occurrences to higher headquarters, i.e., PM as outlined in AR 50-6, and AR 385-40 to include appropriate supplements.

i. The Public Affairs Officer (PAO), RMA, will, if applicable, notify higher headquarters, i.e., PM as required by AR 360-5; and at the direction of the Cdr, RMA, will determine when to disclose information to the public.

j. The Chief, Systems Operations Division, will:

(1) Provide a trained and knowledgeable personnel decontamination team, comprised of other Arsenal elements, to respond to emergency situations in the event TEU is not available at RMA.

(2) Be the CAIRO when TEU is not available at RMA.

(3) Provide personal protective clothing and equipment to all RMA Emergency Response members.

k. The Contractor's On-Site Safety Officer (OSO) will:

(1) Provide the mini Decon and central shower system for his particular operations.

(2) Ensure that contractor personnel's Site Safety Procedures interface with this Emergency Response SOP.

(3) Ensure provisions are made for some (minimum 2) contractor personnel to remain on site at a predesignated location (at least 50 meters upwind) until RMA or Technical Escort Unit (TEU) emergency response team arrives so that information can be relayed to the emergency response teams.

(4) Ensure proper protective measures are utilized by contractor personnel on each operational site, to include protective clothing worn and removed properly for decontamination; chemical detection equipment and core sample heaters utilized correctly; and all equipment secured on site until site has been cleared by RMA emergency response actions in the event chemical contamination is suspected.

(5) Upon two consecutive positive readings with the M-18A2 during drilling or soil sampling operations, ensure all personnel within 150 feet of the drill/sample site and where the sample was tested move to a predetermined site upwind and thoroughly decontaminate their outer clothing. The RMA Fire Department will be called to initiate an emergency response.

(a) Have the crew immediately transported in a vehicle with a removable bed liner to the contractor support area where they will process through the hot line to the showers. Clothing and equipment will be double-bagged and held; wash water will be retained. Personnel will be observed throughout the process for symptoms of agent exposure.

(b) Return to the site if subsequent laboratory analysis of the suspect soil is negative. If the analysis is positive, the decontamination procedures of this SOP will apply. If the vehicle bed liner and contractor shower trailer are found to be contaminated, they will be decontaminated and retained under Army control.

(6) If contact with liquid or vapor agent is suspected, the contractor will move upwind to their mini-decon location, perform first-level decontamination and removal of outer clothing, and then be transported for further decontamination as appropriate. Rocky Mountain Arsenal personnel will control contaminated clothing until such time that laboratory analysis indicates negative results.

(7) After contractor personnel are transported to the central shower area, they will remain at a designated location for necessary observation for signs and symptoms of agent exposure. Observation by the supervisor or designated authority is necessary before allowing personnel to leave the installation, unless laboratory analysis of samples proves negative. In addition, the transport vehicle will be considered suspect contaminated until such time monitoring results prove negative. If positive readings are encountered, the transport vehicle will be decontaminated to the 3X level and appropriately marked in accordance with AMC-R 385-131. The transport vehicle must remain upwind of the operational site (at least 50 meters) to preclude the possibility of the vehicle becoming contaminated prior to its use.

l. The TEU/EOD Project Officer (OIC) will:

(1) Serve as the CAIRO of RMA when on Post.

(2) Obtain overall guidance from the Commander, TEU, Aberdeen Proving Ground, Maryland.

(3) Provide a summary of operations conducted to the Program Manager (PM), the Cdr, RMA, and the contractor involved.

(4) Have operational command and control over all personnel directly involved in the operations downrange.

(5) Be responsible for the execution of all TEU operations.

(6) Conduct a briefing for all personnel involved in downrange operations and reemphasize safety precautions to be taken.

(7) Ensure a copy of this SOP and other applicable publications are readily available in a conspicuous place at the command post.

(8) Coordinate with TEU S4, PM, and RMA for acquisition of necessary military unique supplies to complete operations.

(9) Ensure radio/telephone contact with CAIRO on site is maintained during all operations.

(10) Ensure that the required personnel, equipment, and decontaminants are on-hand before starting operations.

(11) Be responsible for establishing the hotline.

(12) Ensure that a log (DD Form 1594) of operations is kept.

m. The Decon Team Hot Line Supervisor (TEU NCOIC when on post) will:

(1) Ensure that all personnel are prepared and ready for work upon arrival at the work site at the time designated by the OIC.

(2) Ensure that each individual has been briefed on the hazards of the operations and that the SOP has been read, understood, and signed by all personnel concerned.

(3) Ensure that substitutes for the operational teams are available when required.

(4) Ensure that all operational personnel have received a daily safety briefing before they are involved in any operations.

(5) Ensure that all equipment will be operated by licensed personnel.

(6) Ensure that all downrange personnel have had their protective masks fit checked with amyl acetate (banana oil).

(7) Ensure the CAIRO has TEU radio net and RMA Charlie net, as necessary.

n. The TEU personnel will perform procedures as directed by the OIC.

o. The individual workers will:

(1) Follow protective measures outlined in this SOP and any other applicable SOPs in order to prevent the spread of contamination and to prevent becoming a chemical casualty.

(2) Inform supervisor of any change in health status, particularly during and after operations occur.

4. HAZARDOUS CHEMICALS. In all cases, the RMA Fire Prevention Branch will, after initial decontamination, evacuate the victim immediately to the Fitzsimons Army Medical Center (FAMC) Emergency Room (ER). They will ensure the FAMC ER is notified of the incoming casualty by the most expeditious communication method available.

a. HTH (Calcium Hypochlorite).

(1) HTH is a bleaching material available as a stable, water-soluble material in a granular form. The compound contains between 70% and 30% available chlorine and is very corrosive. HTH is satisfactory for the decontamination of V and H agents. Do not use pure HTH on H, since a toxic vapor and/or a fire can be produced.

(2) HTH will destroy clothing, has a toxic vapor, and will burn the skin. A protective mask and rubber gloves are the minimum protective equipment for handling HTH. If HTH comes in contact with the skin or clothing, the area should be flushed with large amounts of water.

(3) HTH bleaches out the enzyme detector ticket. To confirm decontamination, use M8 detector paper for VX and the Blue Band Tube/Green Top Bottle for G series agents. Use Blue Band Tube/Blue Top Bottle for H series agents.

(4) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

b. STB (Super Tropical Bleach).

(1) STB is a bleaching material available as a stable, water-soluble material in a powder form. The compound contains between 35% and 10% available chlorine and is very corrosive. STB is used primarily in slurry pans. Do not use pure STB on H, since a toxic vapor and/or a fire will be produced.

(2) STB will destroy clothing, has a toxic vapor, and will burn the skin. A protective mask and rubber gloves are the minimum protective equipment for handling STB. If STB comes in contact with the skin or clothing, the area should be flushed with large amounts of water.

(3) STB bleaches out the enzyme detector ticket. To confirm decontamination, use M8 detector paper for VX and the Blue Band Tube/Green Top Bottle for G series agents. Use Blue Band Tube/Blue Top Bottle for H series agents.

(4) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

c. Soda Ash (Sodium Carbonate - Washing Soda).

(1) Soda Ash is a white powder having alkaline properties.

(2) Soda Ash is used for decontamination purposes at the personnel decontamination station (PDS) and is an effective decontaminant for G agents.

(3) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty, if necessary.

d. Caustic Soda (Sodium Hydroxide).

(1) Caustic Soda is the primary decontaminant for G series agents.

(2) Caustic Soda should be mixed in an iron or steel container, never in an aluminum one.

(3) Add Caustic Soda to water to prevent boiling and spattering due to the excessive heat emitted.

(4) Caustic Soda can cause skin burns.

(5) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

NOTE: Caustic Soda is not in the list of required materials. Use Soda Ash instead.

e. Nerve Agents (GB, GD, GA, VX).

(1) GB, GD, and GA are colorless liquids with a high boiling point and a very low freezing point. They are considered non-persistent, lethal chemical agents.

(2) VX is a straw-colored liquid with an extremely high boiling point and a very low vapor pressure. It is considered a persistent, lethal chemical agent.

(3) Nerve agents are rapid-acting, lethal chemical agents. The action of the agent within the body is the inactivation or inhibition of cholinesterase. The hazards from nerve agents are that of vapor absorption through the respiratory tract, absorption through any part of the skin, through the eyes, and through the gastrointestinal tract by ingestion.

(4) Accidental skin contact with the liquid agent or inhalation of agent aerosol or vapor are the most common causes of casualties. The agent absorption rate is accelerated through cuts or abrasions in the skin.

(5) Symptoms - Initial:

(a) Pinpointing of pupils (myosis) and dimness of vision.

(b) Running nose.

(c) Tightness of chest.

(d) Difficulty in breathing.

(e) Liquid contact produces, in addition to the above symptoms, localized sweating and twitching in the muscles beneath the exposed area.

(6) Symptoms - Advanced.

(a) Nausea and possible vomiting.

(b) Cramps and involuntary urination and/or defecation.

(c) Headache or drowsiness.

(d) Coma.

(e) Convulsions.

(f) Cessation of breathing.

(7) The casualty will be decontaminated. After decontamina tion of the eyes by immediately flushing with water and decontaminating the face, the victim will be masked. Contaminated clothing will be removed. Contaminated areas (except eyes) will be washed with commercial liquid household bleach (Sodium Hypochlorite - nominal 5% solution) and flushed immediately with water. Decontamination will be completed, if possible.

(8) If there is no apparent breathing, CPR will be started immediately. Mechanical resuscitation will be used by the EMTs if facial contamination is present.

(9) One (1) Nerve Agent Antidote Kit (NAAK), MARK 1, will be given immediately by intramuscular injection to an individual upon onset of symptoms or signs of agent exposure.

NOTE: Although myosis (pupil contraction) is a sign of nerve agent exposure, the MARK 1 kit will not be given when this is the only symptom present (IAW DARCOM Reg 385-102).

(10) One MARK 1 injector dose may be repeated at 10-15 minute intervals if indicated by the continuation of nerve agent symptoms. No more than three (3) doses will be given without the advice and approval of a physician. A record of the doses will be kept with the casualty.

(11) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

f. Mustard (H, HD, HT - Blister Agents).

(1) Mustards are oily liquids ranging from colorless to dark brown in color. They have a characteristic odor similar to garlic or horseradish. Mustards freeze at approximately 58 degrees Fahrenheit, are stable in storage to 252 degrees Fahrenheit, and have no action on metals.

(2) Mustards are delayed-action, persistent, toxic chemical agents that burn and blister the skin or injure the internal parts of the body. Main portals of entry into the body are by inhalation of the vapors, by liquid contact with the skin, or through any body opening.

(3) Persistence of the hazard from mustard is dependent upon the concentration of the agent and the temperature. It will persist two to five times longer in the winter than in the summer.

(4) Mustard has a cumulative effect even in small repeated exposures and may produce a sensitization in some individuals. If this occurs, the individual will exhibit allergic symptoms and will react to even small doses.

(5) Symptoms.

(a) Little or no pain occurs upon exposure to mustards. The first symptoms appear 4 to 6 hours later.

(b) Eyes are extremely sensitive to low concentrations of mustard and become inflamed, causing "red eye" and a sensation of grit in the eyes.

(c) When exposed to heavy concentrations, the nose and throat become inflamed, causing the sensation of having a head cold.

(d) The skin reddens and water blisters may develop if the individual contacts liquid mustard.

(6) After exposure to a mustard agent (H, HD, HT, or L), flush eyes and face with copious amounts of fresh water. Blot contamination from the skin - DO NOT RUB OR SCRUB!

(7) Remove the person from the source of the contamination and flush the skin and clothes with a 5% Sodium Hypochlorite solution within one (1) minute of exposure. Remove the contaminated clothing. Flush the skin again with a 5% Sodium Hypochlorite solution. Wash contaminated skin with soap and water. If showering facilities are not immediately available, use the skin decontamination pads found in the M258A1 Decontamination Kit.

(8) For gross contamination of the skin, the contaminated area should be flushed immediately with clear, cool water, avoiding rubbing the affected area. As soon as possible, the individual should shower.

(9) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

g. Lewisite (L - Blister Agent).

(1) Lewisite is an oily liquid ranging from colorless to violet in color. It has a characteristic odor similar to that of geraniums. Lewisite freezes at 0 degrees Fahrenheit, and has no action on metals if it is dry.

(2) Lewisite is a rapid-acting, non-persistent, toxic chemical agent that burns and blisters the skin or injures the internal parts of the body. Main portals of entry into the body are by inhalation of the vapors, by liquid contact with the skin, or through any body opening.

(3) The persistence of the hazards from Lewisite is dependent on the concentration of the agent and the temperature. It decomposes rapidly in hot, humid weather.

(4) Lewisite has a cumulative effect on the body and acts as a systemic poison.

(5) Symptoms:

(a) Lewisite produces an immediate, strong, stinging sensation to the skin. Reddening of the skin is evident within thirty (30) minutes.

(b) Eyes are extremely sensitive to liquid Lewisite and sight loss will occur if they are not decontaminated within one (1) minute.

(c) High concentrations of Lewisite cause pulmonary edema, diarrhea, subnormal temperature, and low blood pressure.

(6) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

NOTE: Decontamination and treatment of Lewisite casualties is IAW paragraph 3f(7) - (9) above.

h. Hydrogen Cyanide, Cyanogen Chloride (AC, CK - Blood Agents)

(1) Blood agents are absorbed into the body primarily by breathing. They affect the bodily functions through action on the enzyme cytochromeoxidase, thus preventing the normal transfer of oxygen from the blood to the body tissues.

(2) Blood agents are rapid acting casualty-producing agents which have a short duration of effectiveness due to the high volatility of the agents.

(3) CK has the additional capability of breaking down the filter elements of the protective mask.

(4) Symptoms:

(a) Increased breathing rate. (AC) Rapid or shallow breathing, depending on type.

(b) Decreased breathing rate. (CK).

(c) Increased pulse rate and pounding heart.

(d) Lips and skin will flush pink to red because of the excessive oxygen in the blood.

(5) After exposure to a blood agent, evacuate the casualty immediately to the FAMC ER.

(6) Artificial respiration may be needed if breathing becomes difficult.

(7) Decontamination procedures for AC and CK is to wash with copious amounts of water. However, the agent has a rapid evaporation factor making field decon ineffective.

(8) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

i. Adamsite (DM - Vomiting Agent).

(1) DM is a greenish--yellow powder to black solid with no apparent odor.

(2) DM has a very high rate of action and requires only about one (1) minute to incapacitate an individual.

(3) Symptoms:

(a) Irritation to the eyes and mucous membranes.

(b) Runny nose.

(c) Sneezing.

(d) Coughing.

(e) Severe headaches and acute pain.

(f) Tightness in the chest.

(g) Nausea and vomiting. The effects may last up to three (3) hours.

(4) After exposure to a vomiting agent, vigorous activity will lessen the duration of the effects of this agent.

(5) Decontamination procedures -- remove victim to fresh air. A 5% sodium hypochlorite and water solution (bicarbonate of soda) should be used to wash away any detectable DM.

(6) Transport the casualty to the FAMC ER immediately. Notify the ER of the incoming casualty.

j. Phosgene (CG - Choking Agent).

(1) CG is a delayed-action chemical agent which is absorbed by the lung air sacs and then hydrolyzed. This irritation damages the capillaries and causes blood plasma to fill the lungs causing "dry land drowning".
WARNING: CG can defeat the protective mask in a short period of time.

(2) Symptoms:

(a) Initial - May vary from none to severe (coughing, nausea, or headache).

(b) Advanced - Tightness in the chest, painful shallow breathing, and coughing up a frothy sputum.

(3) After exposure to a choking agent, keep the casualty calm and warm.

(4) Aeration is the primary decontamination; however, the area of the face/mask may be washed with copious amounts of water. Caustic solution may be used to decon liquid CG. (Ammonia hydroxide mist may be used for leak detection.)

(5) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

k. BZ.

(1) BZ is a slow-acting incapacitating agent. Action of the agent within the body is the depression of the central nervous system. The hazards of BZ are from inhalation or ingestion.

(2) Sypmtoms: (after 1 to 4 hours).

(a) Restlessness.

(b) Dizziness.

(c) Confusion.

(d) Vomiting.

(e) Dryness of the mouth.

(f) High temperature (sometimes above 102^{o} F *, p. 6)

(g) Flushing of the skin.

(h) Blurred vision.

(i) Dilation of the pupils.

(j) Slurred speech.

(3) After exposure to an incapacitating agent, keep the casualty calm, restrained; may need cooling as for heat stroke*.

(4) Decontamination of personnel can be accomplished by washing contaminated parts with soap and water. Flush eyes with clear water only. Clothing and individual equipment should be shaken or brushed and thoroughly washed. Hypochlorite or alcohol caustic solutions are suitable for deconning.

(5) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

l. White Phosphorous (WP) and Red Phosphorous (RP).

(1) WP and RP are bursting smokes which ignite spontaneously when they come in contact with air. The vapors of WP and RP are poisonous, and exposure causes bone decay. (No vapors are found in smoke.)

(2) WP and RP should be moved and stored under water to prevent spontaneous combustion.

(3) Symptom: Severe burns which could take a long time to heal.

(4) After exposure to WP or RP, keep the casualty calm and keep the affected area under water.

(5) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

5. SPECIFIC SAFETY REQUIREMENTS.

a. Before being assigned to emergency response operations, RMA personnel will be given a medical examination IAW AMC Reg 385-131, DA PAM 40-8, and OSHA standards. The preassignment medical examination will include blood cholinesterase tests IAW current policy to establish a baseline level. Each person who is assigned to hazardous operations will be given a medical examination at least annually and at any other occasion when the medical authority deems it advisable.

b. Other personnel and visitors who have a need to monitor or inspect RMA emergency response operations will have established a baseline cholinesterase level and have a record of it on file at the FAMC, or other medical monitoring program. This will be completed prior to visiting the operational area.

c. In cases of agent exposure, cholinesterase determinations will be made to measure the degree of anticholinesterase activity. Follow-up examinations of plasma and RBC cholinesterase content will be performed at the discretion of the medical officer.

d. Prior to assignment to operations at RMA contractor sites, the contractor personnel will be thoroughly briefed in the signs and symptoms of agent/contaminant exposure, by their Safety and Health personnel, as well as being instructed in first aid and self-aid techniques for exposure to the various agents/contaminants that they will be working with.

e. All personnel involved in operations at RMA suspect hazardous sites will be given an off-duty telephone number (289-0190/0192) to which suspect exposures can be reported to the RMA Fire Dept EMTs.

f. Any illness or sickness will be reported by the individual to the supervisor prior to the start of daily operations or before leaving the job, if the illness occurs during working hours.

g. Individuals requiring entrance to the suspect sites at RMA and having any cuts or abrasions on their person will inform his/her supervisor. These individuals will be referred to qualified medical personnel, prior to being permitted in the hazardous waste site, for assurance the cuts or abrasions are properly covered for the type of work to be accomplished.

h. All protective clothing worn by individuals or used during the operation will be serviceable and wear dated.

i. Protective masks will be serviceable and fit checked prior to use during operations.

j. Training exercises will be conducted utilizing procedures for personnel decontamination (See Appendix A and Figure 1).

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6. INDEX OF OPERATIONS

REMARKS:

a. This SOP prescribes policies and procedures for emergency response actions to be taken at Rocky Mountain Arsenal (RMA). These emergency response actions will support drilling and sampling operations conducted by government and contractor personnel; liquid sampling and area clearance operations conducted by Technical Escort/Explosive Ordinance Detachment (TEU/EOD) personnel; and any other future operations conducted at RMA in which potential for exposure to a chemical surety material exists.

b. The majority of contractors physically working on RMA are supporting the Remedial Investigation (RI) being conducted by the Program Manager for Contamination Cleanup, RMA. The two primary contractors are EBASCO and ESE. Both contractors are involved in drilling soil samples and pulling water samples from the thousands of wells located on RMA.

(1) Morrison-Knudsen Engineers is one of the contractors conducting an RI of contamination on RMA for Shell Chemical Company. This firm does its own collection of soil and water samples, as well as receiving splits of samples taken on RMA by EBASCO and ESE.

(2) Each contractor has numerous subcontractors who fulfill some portion of their contracts on RMA. The contractors, as well as their subcontractors, are responsible for adhering to the procedures outlined in this SOP for the health and safety of all concerned.

c. The Program Manager is responsible for the overall health and safety of contractors working for them. Any changes made by contractors which may affect the health and safety of their employees should be coordinated with the Program Manager and the RMA Safety Manager.

d. Appendix B identifies the procedures to be used should a suspected munition or other hazardous material be found on this installation/post.

e. Appendix D identifies a list of industrial chemicals found on RMA that the contractors are likely to become involved with.

REFERENCES:
AMC-R 385-100
AMC-R 700-107
AR 50-6
RMA-R 385-1

A. STANDING OPERATING PROCEDURE FOR Emergency Response by Rocky Mountain Arsenal (RMA) Personnel and TEU/EOD Personnel (when on post)	B. OPERATION 1 C. LOCATION RMA D. SOP No. RM-SF-50-1 DATE 25 Apr 88 E. REV No. 1 DATE 25 Apr 88 F. CHANGE No. ___ DATE ______

G. OPERATION: Sampling and/or Area Sweeps

H. EXPLOSIVES LIMITS: N/A

I. PERSONNEL LIMITS: Available Personnel on the current TDA

J. STEP NO./DESCRIPTION	SPECIFIC INSTRUCTIONS (Safety (S), Operational (O), Quality Checks (QC))
1. Pre-Operation & During Operation. The supervisor of each operational site will ensure actions are IAW approved SOPs and Safety Plans.	1 (O). OSO/OIC will designate the location of the CP at least 50 meters upwind of the operational site, and will relocate the CP as needed. 2 (O). OSO/OIC will establish and maintain telephone and/or radio communications with the RMA Fire Dept. 3 (QC). OSO/OIC will appoint a CP recorder who will maintain a daily log of all operations to be given to the CAIRC if emergency response actions become necessary. 4 (S). Personnel should know the proper protective equipment to be worn, the proper decontamination techniques to be performed, the methods to limit the spread of potential contamination, and the actions to be taken upon finding a positive test for chemical surety material.

NOTE: Personal Protective Clothing & Equipment (PPC&E) can be found in paragraphs K and L. Levels of PPC&E can be found in AMC-R 385-1, Chapter 4.

J. STEP NO./DESCRIPTION	Specific Instructions (Safety(S), Operational(O), Quality Checks(QC))
2. Termination of Operation. Upon finding a positive test for chemical surety material, operations will cease on site, and emergency notification will begin. [See Figure 1]	1 (O). Upon finding a positive reading for chemical surety material with OV/HNU/M8/M18A2 detectors, all operations stop. 2 (O). OSO/OIC will verify the positive reading with an M18A2 Chemical Agent Detector Kit. If test is negative, resume operations. If test is positive, begin the emergency response by calling the RMA Fire Dept., Ext.223. 3 (O). OSO/OIC will direct on-site personnel to decontaminate their clothing, and proceed to the Contractor's Support Area for processing through the hot line IAW paragraph 2k, page 10. 4 (S). OSO/OIC will observe personnel closely in a shaded area for signs/symptoms of chemical agent exposure and/or heat prostration. 5 (O). All individuals will take appropriate first aid measures for either chemical agent or heat casualties. 6 (O). OSO/OIC will direct all equipment, soil and water samples are to remain on-site. 7 (O). Soil samples found to contain surety material after being placed inside the core heater will not be distributed. These will be monitored by RMA QA personnel; and if positive, will be transported by them directly to the RMA Lab for chemical surety analysis.
3. Limited Emergency Response Actions. a. These actions will be performed by RMA employees in response to notification of a positive reading for chemical surety material.	1 (O). Upon notification of a positive test, the RMA Fire Dept. will notify the Command Office, QA Office and TEU (if on post) of the positive test and the location of the contractor. 2 (O). The Fire Dept Chief, or the Senior Fire Officer, will proceed to

J. STEP NO./DESCRIPTION	Specific Instructions (Safety(S), Operational(O), Quality Checks(QC))
b. These actions will be a combined RMA-TEU response to any notification of a positive reading for chemical surety material.	the CP at the operational site to initiate measures to limit access to the area to authorized personnel only and to assume duties as the A/CAIRO. 3 (S). Until appropriate monitoring with an M18A2 kit has proven the initial test negative, all personnel will assume that the chemical agent is present and dress/perform accordingly. 4 (O). Upon arrival on-site, the QA monitoring team will coordinate with the A/CAIRO and the On-Site Safety Officer (OSO) to gather information before proceeding along with the A/CAIRO in appropriate level Protective Clothing onto the site to perform monitoring of samples, equipment, and bore holes. After providing the necessary information [Figure 3], and answering any additional questions, the OSO and any other contractor personnel will process off the site IAW paragraph 2k, page 10. Individuals will be observed closely for signs/symptoms of chemical agent exposure for at least 30 minutes after coming off-site prior to departing RMA for the day. 5 (O). If M18A2 tests by the Monitoring Team prove to be negative, the Monitoring Team will notify the A/CAIRO who will give the OSO permission to resume operations.
4. When TEU/EOD are on post they will contain hazards and establish a hot-line and PDS. They will also take samples for the Lab test.	6 (O). If the M18A2 kit tests prove to be positive for a chemical surety agent, the Monitoring Team will notify the A/CAIRO of the results and the agent present. The A/CAIRO will direct the personnel decontamition team to set up a PDS, notify the OSO of the positive test results for that particular chemical surety agent.

J. STEP NO./DESCRIPTION	Specific Instructions (Safety(S), Operational(O), Quality Checks (QC))
	7 (O). Depending on the amount of equipment on-site and the number of casualties (if any), the A/CAIRO will direct members of the EMT/FF/RS teams to assist the Monitoring Team in decontaminating equipment on-site, double-bagging all items, and sealing the bore hole with plastic to prevent further vapor hazard in open air. The A/CAIRO through the Fire Prevention Branch will notify the Laboratory.
	8 (O). Once the equipment has been double-bagged, and a sample has been taken to the RMA Lab for chemical surety analysis, the Monitoring Team will pass the double-bagged equipment through the PDS for transportation by truck to Building 882, seal with plastic any sample bore sites in the operational area, place appropriate marker on-site, and then process through the PDS off-site.
	9 (O). The Safety Manager and the PAO, RMA, will make the necessary reports (if applicable) up the chain of command within the prescribed time limits delineating the events which occurred.
5. Extensive Emergency Response Actions and RED PHONE ALERT	1 (O). The A/CAIRO will determine any additional response needed based upon the Monitoring Team recommendations. The A/CAIRO will notify the Security Desk Sergeant who will initiate a RED PHONE ALERT message requesting specified personnel comply with these actions.
	2 (O). When RED PHONE ALERT message comes through, the Emergency Response Team members will proceed to the Laundry for Masking, after which all personnel will take their assigned positions. (See Appendix C for Emergency Response Personnel List.)

J. STEP NO./DESCRIPTION	Specific Instructions (Safety(S), Operational(O), Quality Checks (QC))
	3 (O). The ECC members will proceed to the ECC to assume duties as assigned.
	4 (O). The CAIRO will proceed to the site with the ambulance and driver/EMT.
	5 (O). The ECC will notify the Lab of possible incoming surety samples, and will notify members of the personnel decontamination team to respond IAW this SOP. He will notify the Downwind Vapor Hazard Calculator to proceed to the (ECC) to begin calculating the DWVHD for the chemical agent identified on site.
	6 (O). The Chief, Security Office, will dispatch a TCP Security Team to the operational site based upon the route of ingress onto the site provided by the A/CAIRO. The A/CAIRO will brief the TCP Security Team upon arrival on-site, and will direct the placement of the TCP based upon wind direction, suspected agent, and routes into and out of the operational area. The Chief, Security Office, then proceeds to the ECC to coordinate security operations on post.
	7 (O). The A/CAIRO will direct the required response level of EMT and FF/RS teams based upon circumstances on-site.
	8 (S). Once on-site, all Emergency Response personnel will remain at the CP designated, unless specifically directed to accomplish emergency rescue procedures downrange either while wearing Level A Protective Clothing or appropriate firefighting protective clothing and respiratory apparatus.

J. STEP NO./DESCRIPTION	Specific Instructions (Safety(S), Operational(O), Quality Checks(QC))
	9 (O). After receiving the DWVHD from the ECC, the CAIRO will dispatch the monitoring team in Level B Protective Clothing with mask worn to monitor areas just beyond the DWVHD to ensure no vapor hazards exist outside the DWVHD. The ECC must ensure no unprotected personnel are allowed to remain within the area covered by the DWVHD. The team should radio results and locations to the ECC, where these will be plotted to ensure no additional persons need to be evacuated.
	10 (O). The EMT rescue team remaining at the CP will observe contractor and RMA personnel in the CP, and treat any injuries which may occur.
	11 (O). Once the site has been cleared, and all personnel proceeding from the hot area are processed through the PDS, the CAIRO will determine if the TCP Security Team(s) can be released based upon the location of the site, and the safety factors involved.
	12 (O). The CAIRO will complete the initial report of the accident/incident/occurrence (Figure 3), and provide it to the Cdr, RMA.
	13 (O). The Safety Manager and the Public Affairs Officer (PAO), RMA, will make the necessary reports up the chain of command within the prescribed time limits delineating the events which occurred.
	14 (O). All on-site personnel involved in the emergency response will be observed by EMTs, and if found to exhibit symptoms of chemical agent exposure, will be treated and transported immediately to the FAMC ER for follow-up treatment. Notify the FAMC ER of the incoming casualty, the chemical agent to which the patient was

J. STEP NO./DESCRIPTION	Specific Instructions (Safety(S), Operational(O), Quality Checks(QC))
	exposed, and the decontaminants used, by the most expeditious communications method available.
	15 (O). Once the site has been properly marked and all double-bagged protective clothing, contaminated soil, and equipment have been removed, the CAIRO will cancel the emergency response and allow all personnel to return to normal duties.
6. Follow-Up Requirements	1 (O). The Monitoring Team will monitor the double-bagged equipment with a minimum of one (1) each 2 to 3 hour lab bubbler to determine if contamination is present.
	2 (O). If the analyses show the equipment is no longer contaminated, it can be released to contractor personnel for use <u>on RMA only</u> since it will have been decontaminated to 3X level only. If the analyses show the equipment is still contaminated, the monitoring team will attempt to decontaminate and bubble the equipment again. If the equipment is still contaminated, the equipment will be held on RMA for future thermal decontamination.
	3 (O). Once the analyses of the samples are completed, the RMA Lab will furnish results to QA, Cdr, RMA, TEU (when on post), PM, and the contractor involved. If there are no detectable levels of chemical surety material present in the sample, it can be released to the contractor, and from the contractor to all other appropriate contractors/subcontractors. If there are detectable levels of chemical surety material present within the sample, the sample will not be released, and will remain in Building 882 until final disposal after approved decontamination.

J. STEP NO./DESCRIPTION	Specific Instructions (Safety(S), Operational(O), Quality Checks(QC))
	4 (O). All personnel, including contractor, RMA, and TEU employees, should monitor their health and watch carefully for any signs or symptoms of chemical agent exposure which may not appear until after normal duty hours. If symptoms seem to appear, the individual employee should telephone the EMTs at the RMA Fire Dept to report the symptoms to them (289-0190/0192). They will recommend that the individual proceed immediately to the FAMC ER for treatment. The EMTs will telephone the FAMC ER to report that an individual with specific symptoms is proceeding to their location for treatment.
	5 (O). The final report will be compiled, prepared, and distributed to th Cdr, RMA, the Contractor OSO, the TEU (if on post), and Program Manager, by the CAIRO. It should include: Contractor Report of Suspected Chemical Agent; DA Form 285 (see Figure 4); Lab results (if agent is detected); and CAIR After-Action Report.

K. SPECIAL REQUIREMENTS:

1. Equipment will be added or deleted as dictated by the situation and/or weather conditions at the discretion of the OIC/NCOIC/CAIRO.

2. First Aid Equipment: (located in the ambulance provided by RMA):

a.	Stretcher	2 ea
b.	Blanket, Wool	4 ea
c.	Water	5 gal
d.	Kit, First Aid, General	2 ea
e.	NAAK, Mark 1	6 ea

L. EQUIPMENT, TOOLS, GAGES, AND SUPPLIES:

	ITEM	QTY
1.	MATERIALS:	
a.	HTH (Calcium Hypochlorite)	350 lbs.
b.	Soda Ash (Sodium Carbonate - Washing Soda	350 lbs.
c.	Potable Water	20 gals.
d.	Household Bleach (Sodium Hypochlorite -5% Solution)	5 gals.
e.	STB	50 lbs.
2.	TOOLS/EQUIPMENT PER INDIVIDUAL:	
a.	Mask, Protective, M17A2	1 ea
b.	Mask, Protective, M9A1	1 ea
c.	Boots, Safety or TAP	1 pr
d.	Field Jacket or Parka, Cold Weather	1 ea
e.	Gloves, Butyl Rubber	1 pr
f.	Coveralls, Explosive Handler	1 ea
g.	Headgear	1 ea

h.	Wet Weather Parka and Trousers	1 ea
i.	Kit, Nerve Agent Antidote (Mark 1)	3 ea

3. VEHICLES:

a.	Truck, 4-Wheel Drive, 1/2 ton	2 ea
b.	Truck, Cargo, 2 1/2 ton Tactical w/Power Driven Decontamination Apparatus (PDDA)	1 ea
c.	Ambulance (provided by the RMA Fire Dept)	1 ea

4. CHEMICAL EMERGENCY KIT:

a.	Gloves, TAP	5 pr
b.	Boots, TAP	5 pr
c.	Footwear, TAP (Booties)	5 pr
d.	Hood, TAP, M3	3 ea
e.	Mask, M9 w/Filter	3 ea
f.	Undergarment, Impregnated	3 sets
g.	Gloves, Surgical	9 pr
h.	Coveralls, TAP	3 ea
i.	Coveralls, Explosive Handler	3 ea
j.	Apron, TAP	2 ea
k.	M6A2 Hood	2 ea
l.	Kit, Detector, M18A2	3 ea
m.	Water, 5 gallon Can	3 ea
n.	Bucket, 1 gallon	3 ea
o.	Tape, Masking	4 rls
p.	Bags, Plastic, Large & Small, 6 mil Thick	20 ea
q.	HTH	5 lbs
r.	Soda Ash	5 lbs

s.	Kit, Decontamination, Personal, M258A1	2 ea
t.	Brush, Toilet	2 ea
u.	Magic Markers	4 ea
v.	POP (Plaster of Paris)	10 rls

5. MISCELLANEOUS:

a.	Radio, Portable	6 ea
b.	Megaphone	2 ea
c.	Air Horn	2 ea
d.	Tape, Surveyors, Plastic	8 rls
e.	Stakes (2" x 1" x 4')	100 ea
f.	Hammer	2 ea
g.	Kit, Detector, M18A2	3 ea
h.	Probes, Non-Metallic	2 ea
i.	EOD Response Kit	1 ea
j.	Sani Bags (Prefilled)	20 ea
k.	.50 Cal Carts, Electric	10 ea
l.	Film, Color 5 x 7	10 pkg
m.	Camera, Polaroid	1 ea
n.	Prop Charge Cans Assorted Sizes (1-8" Prop Charge Can)	
o.	Fluorescent Orange Plastic Strips 1" x 6"	100 ea
p.	Chemical Agent Contamination Markers	50 ea

APPENDIX A

PROCEDURES FOR AN EMERGENCY PERSONNEL DECONTAMINATION STATION (EPDS)

STEP 1. Equipment Drop.

Equipment: Any material which prevents the contaminated equipment from contacting the ground, such as plastic bags or oilcloth; container with plastic bag liner for booties.

Action: Place all equipment used at the accident or incident site on the protective material. All movement across the hot line is through the slurry pan, if used. Remove booties, one at a time, and place booties in the container. Step across hot line on the grate over the sump.

STEP 2. Decontamination.

Equipment: Containers, preferably sprayers, for: decontaminant; hot, soapy water; and rinse water; decontaminant in sump, ABC M18A2 Detector Kit; first aid for agent(s) detected by Initial Entry Party (IEP) or Work Party (WP).

Action: Stand on grate over sump. Spray, pour, or brush each person's impermeable protective clothing with decontaminant. Spray, pour, or brush individual with hot, soapy water. Spray or pour rinse water on individual.

STEP 3. Clothing Removal.

Equipment: Plastic-lined container for protective clothing.

Action: Remove all clothing, except protective mask and hood, and place in the container. Continue to Step 4 which is at least 15 meters away.

STEP 4. Mask and Hood Removal and Shower.

Equipment: Plastic-lined container for protective mask and hood; container such as a 5-gallon can for wash water; grate for sump; towels.

Action: Step onto grate, take deep breath, and remove mask and hood and place in a container. Rinse head and upper body, then resume breathing, Pour water over body and wash with soap. Rinse body. Proceed across contamination control line to redress area.

Appendix A (continued)

STEP 5. First Aid and Redress.

Equipment: Extra clothing for personnel who are processed through the emergency PDS. First aid equipment to handle the emergency situation.

Action: Personnel have any injuries treated, dry off, and get dressed. They then go to the CP to wait for equipment and articles left at the PDS.

The IEP and WP should decontaminate as much of its own personal protection items and mission essential equipment as it can. Leave the area and the nonessential equipment to be decontaminated by support personnel.

The EPDS area is marked as contaminated, if required, until it is decontaminated by support elements.

FIGURE 1

EMERGENCY PERSONNEL DECONTAMINATION STATION (EPDS)

CONTAMINATION AREA

STEP 1. Equipment/Bootie Drop.

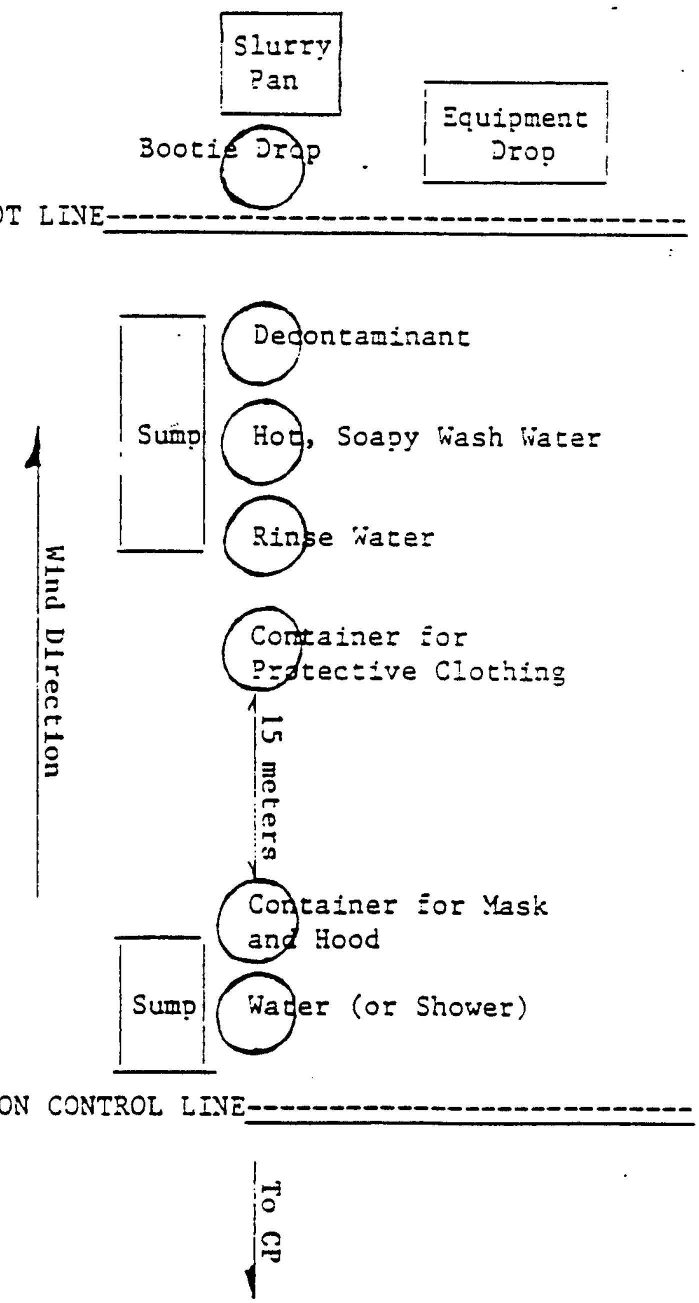
------------------------------------HOT LINE------------------------------------

CONTAMINATION REDUCTION AREA

STEP 2. Decontamination.

STEP 3. Clothing Removal.

STEP 4. Mask/~~Hood~~ Removal and Shower.



--------------------------CONTAMINATION CONTROL LINE--------------------------

REDRESS AREA

FIGURE 2

CONTRACTOR REPORT OF SUSPECTED CHEMICAL AGENT

DATE & TIME________________

Site Safety Supervisor:____
Location:____
Describe Activities in Progress:________________________________
____
____
Personnel Present:_______________________________________
____
Notification to Fire Dept_____________hrs ______/______/______

METHOD OF DETECTION

___Physiological Symptoms (describe):_______________________
____
___Smell/Odor (describe):__________________________________
____
___M18A2 Detector Kit: Color of Tube Band_______________
Number of Drops from which Bottle________
Detector Ticket____________________________
Color Response of Tube or Ticket________

___M8 Alarm
___M8 Detector Paper (color)____________________
___HNU Photoionization Analyzer Model PI-101 (_____ppm)__________
___Foxboro OVA Model 128 (_____ppm)
___Other____
____

SAMPLE REPORT FOR CONTRACTORS

FIGURE 3

RMA FIELD RECONNAISSANCE AND MONITORING
FOR SUSPECTED CHEMICAL AGENT

Date & Time of Investigation: ______________________________

Date & Time of Detection by Contractor: ______________________________

RMA Personnel Conducting Field Investigation: ______________________________

____

____

Describe Activities, Protective Clothing, Instruments, and Equipment:

____

____

Describe Monitoring Performed at Site: ______________________________

____

____

Describe Observations and Action Taken: ______________________________

____

____

Conclusion:

______No Agent Found, Resume Operations.
______Agent Found, Decontaminated, Resume Operations.
______Agent Found, Area Isolated, No Further Operations.

Signature of TEU-OIC ______________________________

Signature of Contractor OSO ______________________________

Signature of CAIRO/A/CAIRO ______________________________

INSTRUCTIONS FOR DA FORM 285

GENERAL. The unit having the accident must investigate it and complete this report. Complete only shaded items for nonfatal off-duty accidents not involving Army operations or materiel. For all other accidents, complete all items except those for safety staff or Safety Center use only. Type or print the report. Items may be continued on an attached sheet. Items not in the instructions are self-explaining.

1a. Enter the six-part unit identification code (UIC) of the unit having the accident.

1b. Enter the description of the unit. For example, enter HHC 2/34 Inf 194 CAV, Yuma PG.

2. If unknown, estimate.

3. Dawn is between first light and official sunrise. Dusk is between official sunset and night.

4. "On Post" means the accident happened on property under Department of Defense control.

5. Enter facts needed to locate the accident scene. As needed, enter building number or direction and distance from closest landmark; enter street or highway name or number; enter city or military installation; enter state and country.

SECTION A – PERSONNEL INVOLVED

Complete this section for each person involved in the accident. "Involved" means a person who was injured or who caused or contributed to the accident. If more than one person was involved, use more forms and complete only this section on them. Witnesses and uninjured passengers are not considered involved. Be sure to also complete this section on each supervisor who caused or contributed to the accident. Give the supervisory error in item 30. In case of damage to property with no personnel involved (*e.g., fire, natural disaster*), report only items 6, 7 and 8 for the property custodian or the hand-receipt holder.

7. Give official address for all Government personnel. Leave out for all others. Include the unit UIC if different from the UIC in item 1.

8. Complete for all Government personnel. Leave out for all others.

9. Enter pay grade for all Government personnel including foreign national employees. For example enter E6, O4, WG8, GS-12, C-5A. Leave out for all others.

10-13. Complete for Government personnel only. Leave out for all others.

14. "On Duty" means *(a)* person was at duty station during duty hours; or *(b)* person was away from duty station during duty hours but on official business. Leave out for non-Government personnel.

15-16. Complete for Government personnel only. Leave out for all others.

18. Enter this person's activity or task. For example, enter firing rifle, lifting box, walking across street, driving truck.

19-21. Leave out if activity *(item 18)* was not required for training. For example exclude horseplay, chow run, stand down.

22. Pick the term below that best describes the overall mission of the activity or task in item 18.

- Administrative; office
- Maintenance; repair services
- Transportation; supply, disposal
- Production; construction
- Research; development, testing
- Emergency services; law enforcement
- Medical
- Physical training; recreation
- Food Services
- Other operation
- Personal; domestic
- Off duty

23. The following definitions apply:

a. Permanent total disability means person can never again do gainful work.

b. Permanent partial disability means person loses or can never again use a body part.

c. Lost workday case - days away from work means person misses one or more days of work.

d. Lost workday case - restricted work activity means person is temporarily unable to perform regular duties.

e. Nonfatal case without lost workday means person *(1)* was permanently transferred or terminated, *(2)* received treatment greater than first aid, *(3)* lost consciousness, or *(4)* had an occupational illness that did not result in fatality or lost workday.

f. First aid only means one-time treatment of minor injuries.

24. Estimate the number of workdays this person will lose. Do not update this estimate unless this person dies.

25. Estimate the number of workdays this person cannot perform all regular duties after going back to work.

26. Describe this person's injury or occupational illness. For example enter third-degree chemical burn, first-degree thermal burn, compound fracture, dermatitis, heatstroke, concussion.

27. For the injury or illness shown in item 26, give the body part involved. For example, enter left knee, lungs, right thumb, nose.

28. Pick from the list below the event that resulted in the injury or illness. Then give the thing that produced it. For example enter struck against door; bodily reaction due to slip; overexertion due to lifting box; exposure to noise.

- Struck against . . .
- Struck by . . .
- Fell from elevation onto . . .
- Fell from same level onto . . .
- Caught in/under/between . . .
- Rubbed/abraded by . . .
- Bodily reaction due to . . .
- Overexertion . . .
- Exposure to . . .
- External contact with . . .
- Ingested . . .
- Inhaled . . .

30. For each mistake this person made, pick one error from the list below. Use error in a sentence that includes the result of the error. For example, due to *improper attention*, SGT Jones did not yield the right of way to the other vehicle; PFC Smith made an *improper decision* to drive while under the influence of alcohol; Mr. English *failed to follow procedures (SOP)* and began spot welding without his safety goggles in place; due to *inadequate planning* by the company commander (*CPT Wright*), there was no unit ice and snow removal program. As a result, PFC Carr broke his arm by falling on the icy steps.

- Inadequate inspection
- Improper attention
- Failed to recognize
- Misjudged clearance/speed/weight/size
- Misinterpreted
- Failed to anticipate
- Inadequate planning
- Improper decision
- Inadequate improvising/troubleshooting/problem solving
- Failed to follow procedures/orders/laws
- Failed to comply with general rules/principles
- Improper simple physical action *(lift, hold, drop, hit, push, pull, sit, stand, reach for, open, close, connect, disconnect, etc.)*
- Improper complex physical action *(walk, run, crawl, climb, carry, jump, align, adjust, steer, brake, etc.)*
- Inadequate communication *(ask, answer, signal, inform, etc.)*

SECTION B – PROPERTY AND/OR MATERIEL INVOLVED

31a. List all property involved in the accident whether damaged or not. For example, enter Tank, M60A1. "Property involved" means materiel which is damaged or whose use or misuse contributed to the accident.

31b. Give ownership for each item listed. For example enter Army, Air Force, Army National Guard, contractor, or private.

31c. If accident involved Army operations, enter estimated total cost of damage. Total will include costs of parts and labor.

32. For each materiel failure or malfunction, pick one type from the list below. Use the type in a sentence to tell how the materiel failed. Include nomenclature of materiel as in item 31. For example, M60A1 fuel line connector *vibrated* loose and sprayed fuel over engine causing fire; #1500M road grader fuel brake master cylinder rubber piston seal *decayed* and failed causing loss of fluid and brake failure.

- Overheated/burned/melted
- Froze *(temperature)*
- Obstructed/pinched/clogged
- Vibrated
- Rubbed/worn/frayed
- Corroded/rusted/pitted
- Overpressured/burst
- Pulled/stretched
- Twisted/torqued
- Compressed/hit/punctured
- Bent/warped
- Sheared/cut
- Decayed/decomposed
- Electric current action *(short, arc, surge, etc.)*

33. TM 38-750 requires a Category I EIR for materiel failures or malfunctions that cause or contribute to accidents.

SECTION C – ENVIRONMENTAL CONDITIONS INVOLVED

34. For each environmental condition, pick one type from the list below. Use the type in a sentence that describes its role in the accident. For example, driver's vision was restricted by fog; air breathed was *contaminated* by toxic fumes; heat exhaustion resulted from high *temperature*; person slipped and fell on *floor* made *slippery* by wax.

- Illumination *(dark, glare, etc.)*
- Precipitation *(rain, fog, ice, snow, etc.)*
- Contaminants *(fumes, dust, chemicals, FOD, etc.)*
- Noise
- Temperature/humidity
- Wind/turbulence
- Vibration
- Acceleration/deceleration
- Radiation *(sunlight, x-ray, LASER, etc.)*
- Work surface *(slippery floor, cluttered walkway, steep rough road, etc.)*
- Air pressure *(explosion, decompression, altitude effects, etc.)*
- Electricity *(lightning, arc, surge, short, shock, etc.)*

SECTION D – DESCRIPTION AND CORRECTIVE ACTION

35. Give the sequence of events that describes what happened leading up to and including the accident. In describing the factors be sure to *(a)* name personnel making errors, *(b)* tell how involved personnel are related to materiel listed in item 31 (e.g., passenger in M151A2 or lighting immersion heater), and *(c)* tell how environmental conditions affected personnel or materiel. Continue on an attached sheet if necessary.

37. This item is to be completed by the commander or his representative.

38. Command review as locally required.

SAFETY STAFF USE ONLY

GENERAL. The safety staff will complete this section on all accidents. The safety staff will investigate all accidents requiring a DA Form 285-1 and will attach it to this report.

39. When change is checked, items 1, 2, 5 and 8 must be completed plus any changes.

40. Enter MACOM of the unit shown in item 1. For example enter FORSCOM, TRADOC, USAREUR, NGB or COE.

42. From the list below, select the type that best describes this accident. Types are listed in order of precedence to help pick one when more than one applies.

- Army motor vehicle
- Army combat vehicle
- Army operated vehicle
- Privately owned vehicle
- Marine diving
- Marine underway
- Marine not underway
- Other Army vehicle
- Fire
- Chemical
- Explosive
- Missile
- Radiation
- Nuclear
- Personnel injury – other
- Property damage – other

43. Describe the type of vehicle collision. For example, ran off road and overturned, head-on collision, sideswipe, or vehicle struck pedestrian.

UNITED STATES ARMY ACCIDENT INVESTIGATION REPORT

For use of this form, see AR 385-40; the proponent agency is OCSPER.

REQUIREMENT CONTROL SYMBOL CSGPA – 1471(R4)

NOTE: SPACES, BELOW, DEFINED BY HEAVY LINES ARE FOR "SAFETY CENTER USE ONLY."

1. UNIT IDENTIFICATION — a. UIC | b. DESCRIPTION

2. TIME AND DATE OF ACCIDENT — a. YEAR | b. MONTH | c. DAY | d. HOUR

3. TIME OF DAY (Check one) — ☐ a. DAWN ☐ b. DAY ☐ c. DUSK ☐ d. NIGHT

4. LOCATION — ☐ a. ON-POST ☐ b. OFF-POST

5. EXACT LOCATION OF ACCIDENT

SECTION A – PERSONNEL INVOLVED

6. NAME (Last - First - MI)
7. ADDRESS (Use office address for all Government personnel)
8. SOCIAL SECURITY NUMBER
9. GRADE
10. AGE
11. SEX — ☐ a. MALE ☐ b. FEMALE
12. MOS OR CIVILIAN JOB SERIES
13. FLIGHT STATUS — ☐ a. YES ☐ b. NO
14. DUTY STATUS — ☐ a. ON DUTY ☐ b. OFF DUTY
15. NO. OF HOURS ON CONTINUOUS DUTY BEFORE ACCIDENT
16. NO. OF HOURS SLEEP IN LAST 24 HOURS (if hours on duty more than 8)

17. CLASSIFICATION AT TIME OF ACCIDENT (Check appropriate box)

☐ a. ACTIVE ARMY ☐ b. ARMY CIVILIAN ☐ c. ARMY CONTRACTOR ☐ d. NONAPPROPRIATED FUND ☐ e. OTHER U.S. MILITARY ☐ f. ROTC ☐ g. DEPENDENT

NATIONAL GUARD: ☐ h. TECH ☐ i. IDT ☐ j. AT ☐ k. FTTD ☐ l. FTM ☐ m. ADT

ARMY RESERVE: ☐ n. IDT ☐ o. AT ☐ p. ADT ☐ q. FTM

FOREIGN NATIONAL: ☐ r. DIRECT HIRE ☐ s. CONTRACT HIRE ☐ t. KATUSA

☐ u. OTHER (Specify)

18. THIS PERSON'S ACTIVITY/TASK AT TIME OF ACCIDENT

19. IF THIS PERSON'S ACTIVITY WAS NECESSARY PART OF TRAINING, GIVE TYPE — ☐ a. BASIC (School) ☐ b. PROFICIENCY (Unit) ☐ c. ADVANCED (School) ☐ d. OTHER (Specify) ☐ e. OJT (Unit)

20. WAS THIS PERSON'S ACTIVITY PART OF FIELD EXERCISE? — ☐ a. YES ☐ b. NO

21. WAS THIS PERSON'S ACTIVITY PART OF TACTICAL TRAINING? — ☐ a. YES ☐ b. NO

22. OPERATIONAL CATEGORY

23. SEVERITY OF INJURY TO THIS PERSON (Check only one)

☐ a. FATAL ☐ b. PERMANENT TOTAL DISABILITY ☐ c. PERMANENT PARTIAL DISABILITY ☐ d. LOST WORKDAY CASE - DAYS AWAY FROM WORK ☐ e. LOST WORKDAY CASE - RESTRICTED WORK ACTIVITY ☐ f. NONFATAL CASE WITHOUT LOST WORKDAYS ☐ g. FIRST AID ONLY ☐ h. NO INJURY ☐ i. MISSING AND PRESUMED DEAD

24. WORKDAYS LOST (estimate)
25. WORKDAYS RESTRICTED (estimate)
26. TYPE/NATURE OF INJURY/OCCUPATIONAL ILLNESS
27. BODY PART AFFECTED
28. CAUSE OF INJURY/OCCUPATIONAL ILLNESS
29. VEHICLE RESTRAINT SYSTEM — ☐ a. USED ☐ b. NOT AVAILABLE ☐ c. NOT APPLICABLE ☐ d. AVAILABLE BUT NOT USED

30. THIS PERSON'S ERRORS WHICH CAUSED OR CONTRIBUTED TO THE ACCIDENT (Describe each mistake and the result)

SECTION B – PROPERTY AND/OR MATERIEL INVOLVED

31. LIST ALL PROPERTY INVOLVED IN THE ACCIDENT, WHETHER DAMAGED OR NOT. IF ACCIDENT INVOLVED ARMY OPERATIONS, SHOW COST OF ANY DAMAGE.

NO.	a. NAME OF ITEM		b. OWNERSHIP		c. AMOUNT OF DAMAGE
1					
2					
3					

32. MATERIEL FAILURE(S)/MALFUNCTION(S) WHICH CAUSED OR CONTRIBUTED TO THE ACCIDENT (Tell what failed and how it failed)

33. CONTROL NUMBER FOR THE EIR COVERING EACH FAILURE/MALFUNCTION (Block 3 of SF 368)

SECTION C – ENVIRONMENTAL CONDITIONS INVOLVED

34. ENVIRONMENTAL CONDITION(S) WHICH CAUSED OR CONTRIBUTED TO THE ACCIDENT

SECTION D – DESCRIPTION AND CORRECTIVE ACTION

35. FULLY DESCRIBE THE ACCIDENT

36. ACTION TAKEN, ANTICIPATED, OR RECOMMENDED TO CORRECT THE CAUSE(S) OF THIS ACCIDENT

37. SIGNATURE OF COMMAND REPRESENTATIVE

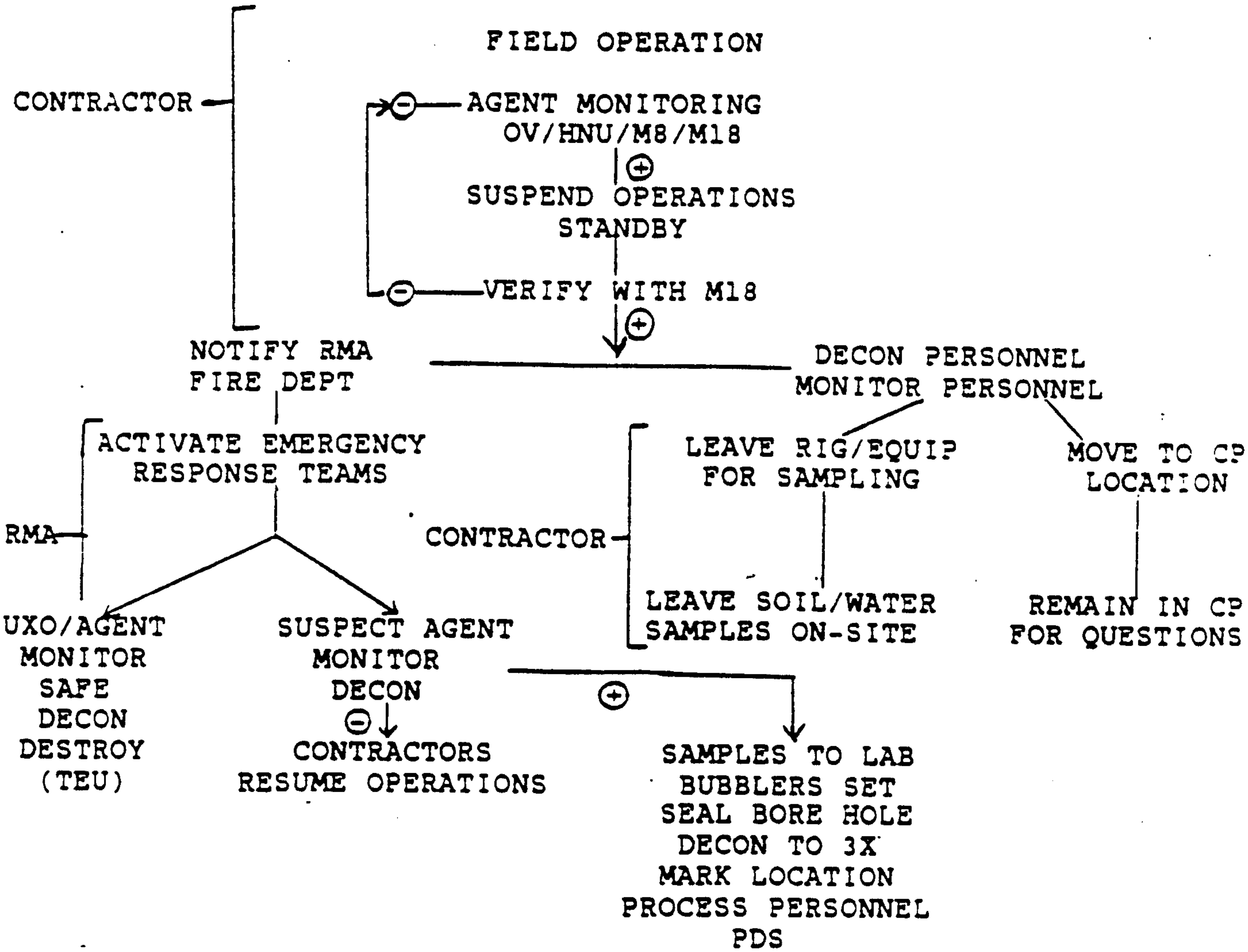
38. COMMAND REVIEW — a. | b. | c.

SAFETY STAFF USE ONLY

39. REPORT SUBMISSION — ☐ a. INITIAL ☐ b. CHANGE
40. MACOM
41. LOCAL REPORT NUMBER
42. ACCIDENT TYPE
43. TYPE OF VEHICLE COLLISION
44. SAFETY STAFF POINT OF CONTACT
45. SPECIAL REQUIREMENTS
46. DATE REPORT COMPLETED (Yr - Mo - Day)

FIGURE 5

FIELD ACTIONS TAKEN FOR DETECTION OF CHEMICAL AGENTS



APPENDIX B

DEPARTMENT OF THE ARMY
ROCKY MOUNTAIN ARSENAL
COMMERCE CITY COLORADO 80022-2180

REPLY TO ATTENTION OF

SMCRM-SF 18 May 1988

SUBJECT: Command Policy Letter: Control of Suspected Munitions or Other Hazardous Material Found on Post

SEE DISTRIBUTION

1. All potentially hazardous munitions, munition components, and sensitive or hazardous materials will be controlled from the time of discovery on the Installation until their final disposition. Accountability will be maintained by the Director of Installation Services. Quantities issued to other activities will be controlled by the appropriate responsible officer, who will maintain adequate records to show disposition at all times. All such material will be stored in accordance with current regulations.

2. Any suspected munition or hazardous material found on the Installation will not be moved or handled by the person(s) discovering the suspect item. The location will be noted and the finder's supervisor or foreman will be advised immediately. The following information will be provided:

a. Name of individual discovering item.

b. Location and telephone number of supervisor (foreman) calling.

c. Description of munition or hazardous material found.

d. Specific location of the item(s).

e. Brief description of how the munition or hazardous material was located.

3. Responsibilities:

a. <u>Supervisor</u> (of the individual finding the suspect item) will:

(1) Immediately notify the Chief, Security Office, Extension 367/Fire Prevention Branch, Extension 192, of the finding.

(2) Fill in the initial information (Section A) of the DA Form 3265-R (sample attached) and give to EOD personnel for completion o Section B (or C, Fire Prevention Branch, if EOD is not called in).

This letter supersedes letter, SMCRM-SF, 11 March 1986.

SMCRM-SF 18 May 1988
SUBJECT: Command Policy Letter: Control of Suspected Munitions or Other Hazardous Material Found on Post

b. Chief, Fire Prevention Branch, will:

(1) Make a preliminary inspection, designate/mark the area of the item, and notify the Commander, or his designee, who will make the determination if support from the 94th EOD is necessary. (If Tech Escort Detachment is on post, they will be notified in lieu of the 94th EOD.)

(2) After investigating and verifying the report, immediately notify the Safety Manager of the reported finding.

(3) If munitions or toxic chemicals are involved, notify security for an access control team.

(4) Complete DA Form 3265-R if EOD is not called in. Copies of the report will be forwarded that day to Chief, Supply division; Facilities Engineer; Chief, Quality Assurance; and Director, Contamination Control.

c. Chief, Security Office, will:

(1) Control access onto and off the site.

(2) Provide escort for the EOD team in moving the munition or hazardous material to an appropriate storage location as determined in coordination with the Chief, Supply Division.

(3) Report appropriate items on DA Form 3056 in accordance with the provisions of AR 190-11 and/or AR 190-40.

d. Chief, Supply Division, will:

(1) Research found items to determine if the reported commodity is on record. If not on record, the commodity will be recorded and reported to the appropriate National Inventory control Point (NICP).

(2) Notify the security and Safety Offices immediately for action under Serious Incident Reporting Procedures.

e. Safety Manager will: Incorporate this information in the safety indoctrination given to all new employees.

f. Directors and Office Chiefs will: Ensure that all personnel are informed of the procedures directed in paragraphs 1 and 2 above.

Edward R. Ettner, Jr.

Encl

EDWARD R. ETTNER, JR.
MAJ, CmlC
Commanding

DISTRIBUTION B

EXPLOSIVE ORDNANCE INCIDENT REPORT

For use of this form, see FM 9-15 and 9-16; the proponent agency is U.S. Continental Army Command.

1. UNIT NUMBER	2. CONTROL NUMBER	3. UNUSUAL / 4. ROUTINE
SMCRM-		

SECTION A: INITIAL INFORMATION

5. DATE/TIME REPORTED	10 Jan 86, 0930 hrs
6. REPORTED BY	U. R. Safe
7. PHONE NUMBER	289-0001
8. ADDRESS	Rocky Mountain Arsenal
9. INCIDENT LOCATION	In back of Bldg 109 North side
10. WHO TO CONTACT	Security Police, X-369 Fire Prev Br, X-192
11. ITEM(S) REPORTED	Green ton container appears to be bent in in the middle

SECTION B: ACTION BY EOD

12. PERSONNEL DISPATCHED	13. DATE/TIME	14. TRAVEL DATA	15. MAN-HOURS
	A. DPRT	A. AIR-FLYING TIME	A. TRAVEL
	B. ARR	B. VEH-MILEAGE	B. INCIDENT
	C. COMPL		

16. CONFIRMED IDENTIFICATION

17. DISPOSITION

18. INCIDENT NARRATIVE (INCLUDE ALL SIGNIFICANT DETAILS AND PROBLEMS)

19.

AUTHENTICATION

A. TYPED NAME, GRADE OF UNIT COMMANDER	B. TELEPHONE NO.	C. DATE

APPENDIX C

EMERGENCY RESPONSE PERSONNEL LIST

ECC Commander	David L. Heim, Ext. 115
RMA Commander	Edward R. Ettner, Jr., MAJ, Ext. 141
Program Manager, Technical Operations	David S. Strang, X 118
Chemical Accident/Incident Response Officer (CAIRO)	Susan Neary, CPT, Ext. 424 (when on post)
Chemical Accident/Incident Response Officer (CAIRO)	Tom James, Ext. 264
Assistant CAIRO (A/CAIRO)	Martin Wittig, 192
Director, Installation Services	David L. Heim, 115
Laboratory	Elijah G. Jones, Ext. 194
Chief, Technical Support Office	Elijah G. Jones, Ext. 194
Quality Assurance	William Moloney, Ext. 112
Monitoring Team	William Moloney, Ext. 112
DIS Monitoring Team	To Be Designated, Ext. 115
Chief, Security Office	William Dowell, Ext. 367
Security Desk	Desk Sergeant, Ext. 369
Safety Manager	Alma T. Harris, Ext. 338
Public Affairs Officer	William R. Thomas, Ext. 441
Contractor On-Site Safety Officer	To Be Designated
Personal Protective Clothing	Thomas James, Ext. 264
Chief, Systems Operation Division	Thomas James, Ext. 264
Hot Line Team	System Operation Personnel, Ext. 351

Emergency Response Personnel List (continued)

Decon Team	TEU/EOD Personnel when on post), Ext. 424
TEU/EOD Project Officer	Susan Neary, CPT, Ext. 424
TEU NCOIC, Aberdeen, MD	AV 584-4383
94th EOD, Fort Carson, CO	AV 691-4242
Surety Officer, AMCCOM, (MAJ Calvin Austin)	AV 793-4815
Alternate Surety Officer, AMCCOM (Betty Peterson)	AV 793-3193

APPENDIX D

INDUSTRIAL CHEMICALS LIST

1. Lead (Pb).

(a) Lead, inorganic lead, includes lead oxides, metallic lead, lead salts, and organic salts, but excludes lead arsenate and organic lead compounds. Lead is a blue-gray metal which is soft and malleable. Lead is slightly soluble in water in the presence of nitrates, ammonium salts and carbon dioxide.

(b) The routes of entry are inhalation and ingestion. Lead can cause anemia and hemopoetic system disturbances, kidney damage, central nervous system damage, and reproductive problems (decreased sperm production and teratogenesis).

(c) Symptoms: Early Effects:

(1) Fatigue.

(2) Sleep disturbance.

(3) Headache.

(4) Nausea.

(5) Aching bones and muscles.

(6) Constipation.

(7) Abdominal pains.

(8) Decreased appetite.

(9) Irritability.

(d) Symptoms: Long Term Effects:

(1) Anemia.

(2) Pallor.

(3) Lead line on gums.

(4) Decreased hand-grip strength.

(5) Wrist or foot drop.

(e) After exposure to lead, irrigate eyes with water.

(f) Flush skin with soap and water.

(g) If exposure is respiratory, move the exposed person to fresh air at once and perform artificial respiration.

(h) If the chemical has been swallowed, give large quantities of water and induce vomiting. WARNING: DO NOT MAKE AN UNCONSCIOUS PERSON VOMIT.

(i) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

2. Mercury (Hg).

(a) Mercury is a silvery, mobile, odorless liquid. It boils at 356 - 357 degrees Centigrade. Its vapor pressure at 20 degrees Centigrade is 0.0012 mmHg.

(b) The routes of exposure are inhalation of mercury vapor, skin absorption, and skin and eye contact. Mercury exposure can cause skin and eye irritation. Mercury exposure can also causepneumonitis and bronchitis. Exposure also can cause central nervous system damage and kidney damage.

(c) Symptoms:

(1) Weakness.

(2) Fatigue.

(3) Loss of appetite.

(4) Insomnia.

(5) Loss of weight.

(6) Indigestion.

(7) Diarrhea.

(8) Metallic taste in mouth.

(9) Increased salivation.

(10) Inflammation of gums.

(11) Black line on gums.

(12) Loosening of teeth.

(13) Irritability.

(14) Loss of memory.

(15) Excitability.

(16) Anxiety.

(17) Delirium w/hallucinations.

(18) Melancholia.

(19) Manic depressive psychosis.

(d) If mercury contacts the eyes, irrigate immediately.

(e) If mercury contacts the skin, wash with soap and water promptly.

(f) If exposure is respiratory, move the exposed person to fresh air at once and perform artificial respiration.

(g) If mercury is swallowed, give large quantities of water and induce vomiting. WARNING: DO NOT MAKE AN UNCONSCIOUS PERSON VOMIT.

(h) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

3, Arsenic (As).

(a) Arsenic is a semi-metallic element. The poisonous, whitish, or steel-grey powder of white oxide of arsenic is insoluble in water. Arsenic is present as an impurity in many metal ores and is generally produced as arsenic trioxide as a by-product in smelting of these ores, particularly copper.

(b) The primary routes of entry into the body are skin absorption and ingestion.

(c) Symptoms:

(1) Conjunctivitis.

(2) Visual disturbances.

(3) Peripheral neuropathy (loss of feeling in extremities).

(4) Hyperpigmentations of the skin (increased discoloration).

(5) Palmer and plantar (skin of the hands) hyper-pigmentation of the skin.

(6) Palmer and plantar hyperkeratosis (thicker callouses on hands).

(7) Dermatitis.

(8) Skin cancer.

(d) After exposure to arsenic, irrigate eyes with water.

(e) Wash contaminated areas of the body with soap and water.

(f) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

4. Dibromochloropropane (DBCP).

(a) DBCP is an amber to brown liquid with a pungent odor. It boils at 199 degrees Centigrade under a pressure of 760 mmHg. DBCP has been supplied to the agricultural industry since 1955 in the form of liquid concentrate, emulsifiable concentrate, powder, granules, and solid material.

(b) NIOSH recommends that exposure be limited to no greater than 10 parts per billion as a TWA concentration for 10 hour work-shifts for a forty-hour week.

(c) The primary route of entry into the body is inhalation of vapors.

(d) Ingestion may result in forms of cancer, but cancer has not been proven to be caused by inhalation of DBCP vapors. Target organs of DBCP exposure include the kidneys, liver, and reproductive system.

(e) Symptoms: Chronic Exposure:

(1) Sterility.

(2) Diminished renal functions.

(3) Degeneration and cirrhosis of the liver.

(f) After inhalation of DBCP vapors, move the exposed person into fresh air at once.

(g) After ingestion of DBCP, give large quantities of water and induce vomiting. WARNING: DO NOT MAKE AN UNCONSCIOUS PERSON VOMIT.

(h) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

5. Chlorinated Pesticides (e.g., Dieldrin and Aldrin).

(a) Chlorinated Pesticides are colorless to light-tan solids with a mild chemical odor, melting at from 175 degrees to 176 degrees Centigrade. These are man-made compounds belonging to the group of cyclodiene insecticides and a subgroup of the chlorinated cyclic hydrocarbine insecticides, including DDT, BHC, etc.

(b) These chemicals are persistent in the environment due to low volatility and low solubility in water. They are extremely apolar, resulting in a high affinity for fat leading to a progressive accumulation in the food chain.

(c) The Federal limit of exposure in 0.25 mg/m3. The STEL value is 0.75 mg/m3, and the IDLH level is 450 mg/m3.

(d) The main routes of entry into the body include inhalation, ingestion, skin absorption, eye and skin contact. The target organs are the central nervous system, liver, kidney, and skin.

(e) Symptoms:

(1) Headaches.

(2) Dizziness.

(3) Nausea.

(4) Vomiting.

(5) Malaise.

(6) Sweating.

(7) Myclonic limjerks (voluntary muscle twitching).

(8) Clonic or tonic convulsions (involuntary muscle).

(9) Coma.

(f) After exposure to chlorinated pesticides, irrigate eyes immediately with water.

(g) Wash skin with soap and water promptly.

(h) If the exposure is respiratory, move the casualty into fresh air at once and perform artificial respiration.

(i) If exposure is by ingestion, give large amounts of water and induce vomiting. WARNING: DO NOT MAKE AN UNCONSCIOUS PERSON VOMIT.

(j) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

6. Benzene (C6H6).

(a) Benzene is a clear, volatile, colorless, highly flammable liquid with a characteristic odor. It is used as a constituent in motor fuels, as a solvent, as a chemical intermediate, and in the manufacture of detergents and explosives.

(b) Benzene enters the body by inhalation of vapors, through cuts, ingestion, and eye contact. Entry through intact skin is possible, but is less direct. Benzene attacks the blood, central nervous system, skin, bone marrow, eyes, and the respiratory system.

(c) Symptoms: Local:

(1) Irritation of skin, eyes, and upper respiratory tract.

(2) Pulmonary edema and hemorrhage.

(3) Dry scaly dermatitis.

(d) Symptoms: Systemic:

(1) Central nervous system depression.

(2) Anemia.

(3) Hypo- or hyperactive bone marrow (increase or decrease in red blood cell production).

(4) Leukemia.

(5) Chromosomal aberrations.

(e) After exposure to Benzene, irrigate the eyes immediately with water.

(f) Wash skin with soap and water promptly.

(g) If exposure is respiratory, move the casualty into fresh air at once and perform artificial respiration.

(h) If exposure is by ingestion, get medical attention. WARNING: DO NOT INDUCE VOMITING.

(i) Transport the casualty immediately to the FAMC ER. Notify the ER of the incoming casualty.

7. Unexploded Ordnance (UXO).

(a) The operational area may contain UXOs filled with high explosives and/or chemical agents.

(b) UXOs will be disposed of only by qualified EOD personnel IAW paragraph 7f, SOP TEU-RMA 50-11.

ATTACHMENT B

INSTALLATION SPILL CONTINGENCY PLAN

PREFACE

This Installation Spill Contingency Plan (ISCP) is intended to fulfill the requirements of a Spill Prevention, Control, and Countermeasure (SPCC) Plan, and Army Regulation 200-1 for the Rocky Mountain Arsenal (RMA) in Adams County, Colorado. An SPCC Plan is incorporated as part of this document (Section B9). This ISCP also details hazardous waste spill prevention and response measures. The ISCP applies to all Army personnel, civilian employees, Army facilities, Army contractors, Army contractor facilities, tenants, and tenant facilities located at RMA. The plan shall be effective upon its approval by the Program Manager Rocky Mountain Arsenal (PMRMA), whose mission since 1987 has been to provide support to the ongoing remedial cleanup operations taking place on the installation. This ISCP is part of, and should be implemented in conjunction with, the PMRMA Contingency Plan (Volume I).

The ISCP is designed to minimize hazards to human health and the environment from any unplanned sudden or non-sudden release of hazardous substances or oil to air, soil, or surface and ground water. It establishes responsibilities, duties, procedures, and resources to be employed to contain and mitigate releases of oil and hazardous substances at RMA.

The ISCP specifies procedures to be followed when responding to releases, accidents, and spills involving oil or hazardous substances. These include spill detection, reporting, containment, cleanup, and disposal procedures. The SPCC portion of the document primarily pertains to spill prevention and includes a discussion of spill prevention procedures, methods, and equipment. Also included in this document are general procedures for plan reviews and updates, training, and recordkeeping. The ISCP is supported by several vital appendices which provide information on potential spill sites within the facilities.

Information provided in the ISCP was obtained from the January 1989 SPCC Plan and ISCP prepared by the United States Army Environmental Hygiene Agency, the updated SPCC Plan and ISCP prepared by the Department of Justice in July 1989, and the internal site audits performed by Argonne National Laboratory during the years 1989 and 1990. Information on specific facilities is subject to change and should be updated regularly through site visits.

SECTION B1

INTRODUCTION TO ROCKY MOUNTAIN ARSENAL

B1.1 INSTALLATION HISTORY

The Rocky Mountain Arsenal (RMA) was established in 1942 by the Department of the Army for the primary purpose of manufacturing and assembling chemical and incendiary munitions. At the end of World War II, RMA was placed on standby status. In 1946, portions of RMA were leased to other federal agencies and private industries for the production of commercial products. Shell Chemical Company was the major lessee, engaging in the manufacture of pesticides and herbicides. RMA was reactivated in 1950, after the beginning of the Korean Conflict for the production of incendiary and chemical munitions for the United States Armed Forces.

Following the Korean Conflict, the mission of RMA underwent a series of changes to reflect changes in Defense Department policy. These changes included a shift in the focus of government-owned and-operated arsenals away from mass munitions production, which was taken over by private industry, and toward support and research activities. The specific role of the Arsenal was to provide pilot production, preproduction, and limited production runs for various munitions; testing services and technical assistance to private industry in the production of various munitions; and research, development, and engineering activities support to higher command levels.

During the period from 1954 to 1957 nerve agents were manufactured. During 1959 through 1962, the responsibility for production of a biological anti-crop agent which causes wheat rust was assigned to RMA. From 1965 through 1969, operations at RMA were primarily in support of military requirements in Southeast Asia and included the manufacture and modification of various munitions.

Following 1968, efforts were undertaken to dispose of excess and/or obsolete chemicals munitions at RMA. Neutralization and incineration operations were established to render the chemical munitions nonlethal for disposal. Additional demilitarization programs for various chemical munitions, including chemical agents and biological anti-crop agents were begun at RMA in the early 1970's. This disposal operation became the largest single operation of its kind in the history of the U.S. Department of the Army.

Following the demilitarization program, the U.S. Department of the Army began a contamination control program to cleanup contaminated waste areas that have resulted from historical operations at RMA. The Army's mission at RMA, as of March 1987, is to provide support to the ongoing remedial operations taking place.

B1.2 INSTALLATION DESCRIPTION

RMA is located in Adams County, Colorado, about 10 miles northeast of downtown Denver. RMA includes 17,238 acres and is bordered on the south by Stapleton International Airport, various business and warehouse districts which include some office buildings, and the residential subdivision of Montbello. The residential areas of Commerce City, Dupont, and Irondale adjoin the western boundary of RMA. Agricultural land with scattered residences is adjacent to RMA on its northwestern, northern, and eastern boundaries. A reservation map of RMA and the surrounding area (Plate III-B-J.1) is provided in Appendix J (Volume III).

RMA is surrounded by a 8-foot-high, chain-link fence. Signs measuring approximately 12 by 14 inches in size and bearing the words, "U.S. PROPERTY, NO TRESPASSING" are posted every 500 feet along the fence. Additional signs, approximately 4 by 6 feet in size and bearing the words "U.S. ARMY MILITARY RESERVATION, NO TRESPASSING," are posted about every 2,000 feet around the perimeter approximately 50 yards inside the fence.

There are two main entrances to the facility, the West Gate and the South Gate, through which entrance is controlled by manned guard stations. The West Gate is open and manned by guards 24 hours per day; the South Gate is opened as required and manned by guards only when open. Personnel without pre-approved authority must enter through the West Gate. Entrance procedures for personnel without authorized clearance require sign-in before temporary passes are granted. About 20 other gates are present around the perimeter. These gates are kept locked and are used only for emergencies.

Within RMA, the North Plants, the Basin F Storage Facilities (Tank Farm, Ponds A and B, and the Wastepile), and the Hydrazine Blending Facility are separately fenced and locked. These facilities are patrolled by a mobile security unit at least once each day.

The Logistics Area and the South Plants Area are not separately fenced.

B1.3 FACILITIES DESCRIPTION

The RMA site includes buildings and structures of various types, 35 miles of railroad tracks, and 72 miles of improved roads. RMA has its own steam-generating plant. Water, both for drinking and industrial use, is purchased from the City of Denver. A 1-million-gallon potable water reservoir (Building 372) with two 1,400-gallon-per-minute pumps is kept full for emergency use. Process (nonpotable) water is supplied primarily from Lake Ladora. Surface water and storm water are controlled by drainage systems. RMA has its own sewage treatment plant and sanitary sewer system.

The former production facilities include the South Plants, which were built in 1942, and the North Plants, which were constructed in 1952. The North Plants were the site of GB (Sarin) nerve agent production until 1957. The Shell Chemical Company production activities took place within the South Plants.

The local surface water drainage system consists of several lakes, irrigation ditches, streams, canals, diversion ditches, storm drains, the sanitary sewer system, and the South Platte River. Located in the southern section of the RMA are four small lakes (Ladora, Lower and Upper Derby, and Mary) with an approximate total surface area of 325 acres which are fed by the Highland Lateral Ditch. The principal drainages on RMA are the Sand Creek Lateral, First Creek, and Irondale Gulch. First Creek, an intermittent stream whose channel averages 10 feet wide and 2 to 6 feet deep with a slope of 0.002 percent, runs from the southeast corner of RMA north-northwest toward a "bog" located at the middle of RMA's northern boundary. It then flows northwest toward the South Platte River. The Sand Creek Lateral runs from Lower Derby Lake northward, flowing into First Creek approximately 1 mile south of RMA's northern boundary. The lakes are drained by the Sand Creek Lateral and Irondale Gulch which flows east and then north. Irondale Gulch terminates in a low point along the northeast RMA boundary. Refer to the Storm Drainage and Tree Cover maps located in Appendix J (Volume III) for delineation of the drainage systems at RMA.

The contributing surface watershed on RMA is approximately 17,000 acres, with an additional 8,000 acres draining from surrounding areas. The combined roofed area equals approximately 140 acres, and road and parking area surface total approximately 100 acres (Rocky Mountain Arsenal, 1975).

The storm drainage system consists of approximately 15 miles of drainage ditches, culverts, and channels located on RMA. The channels are sandy and lack vegetation except for some scattered weed growth. The system of culverts and drainage ditches generally drain into catchment basins. High flow from storm events could enter First Creek and the Sand Creek Lateral from the storm drainage system. Therefore, containment of any accidental spill entering the storm drainage system would be necessary to prevent the spill from entering either of the primary onsite drainages.

Program Manager Rocky Mountain Arsenal (PMRMA) operates a sewage treatment plant which handles most of the sanitary wastewater produced at the installation and any surface runoff that enters the sanitary sewer system. Sewer lines run throughout RMA to service the buildings present on the site.

Specific activity areas at RMA considered in the Installation Spill Contingency Plan (ISCP) include the following:

- Logistics,
- North Plants,
- South Plants,
- Basin F Storage Facilities,
- Old Toxic Storage Yard,
- Central Waste Handling Facility,
- North and Northwest Boundary Ground Water Containment Systems,
- Sewage Treatment Plant,
- Hazardous Waste Storage Bunkers (Building 1608),
- Basin A Neck Ground Water Intercept and Treatment Facility,
- Irondale Ground Water Intercept and Treatment Facility, and
- Hydrazine Waste Water Treatment.

Refer to the general maps section of Appendix J for the location of these areas. Site-specific maps are also located in Appendix J.

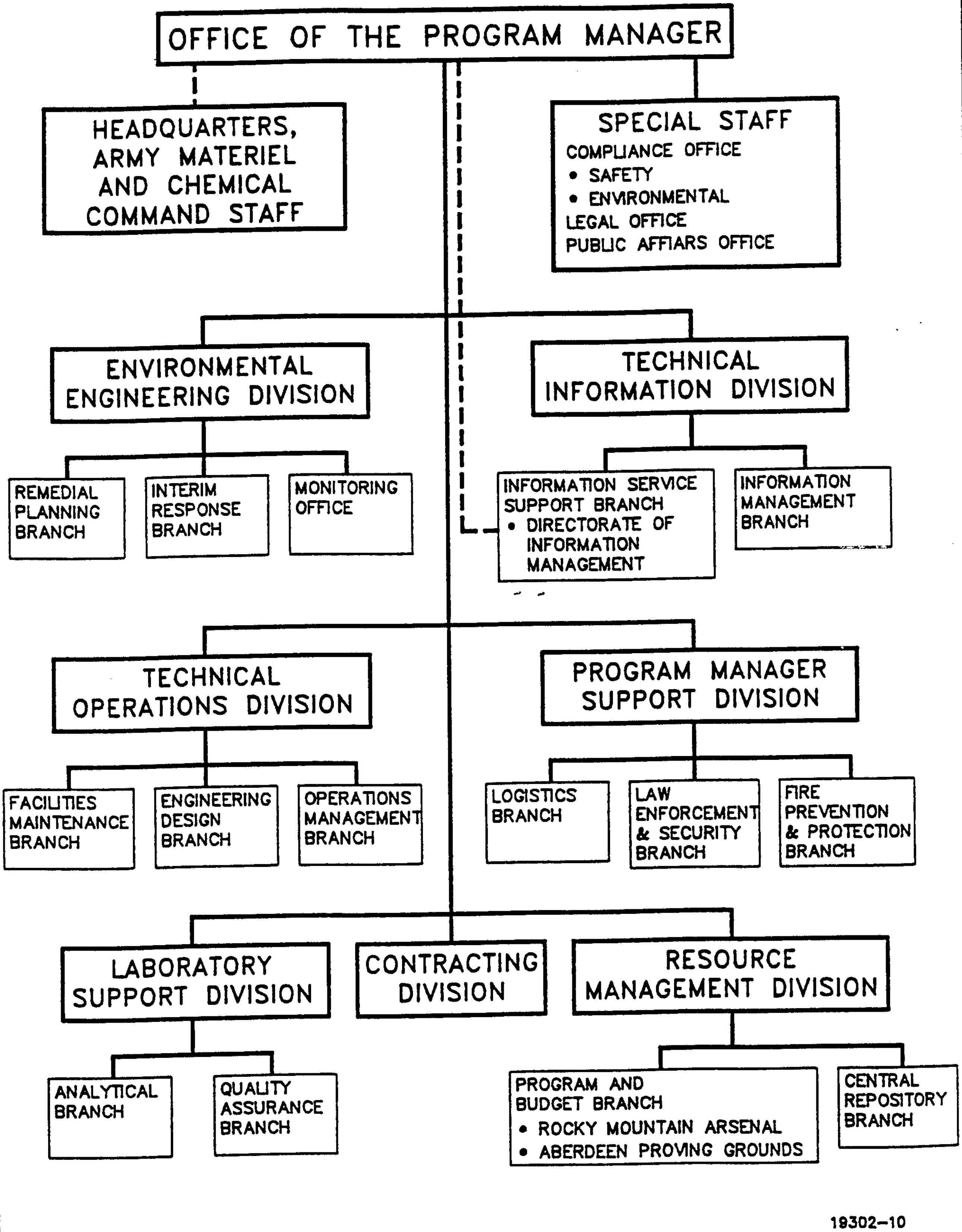
B1.4 INSTALLATION PERSONNEL

RMA is part of the U.S. Army Materiel Command (AMC). As of 1 October 1990, approximately 200 civilian and 3 military personnel are currently employed at RMA. All of the civilian staff are civil service employees. A PMRMA organization chart is shown in Figure II-B.1. The administrative and operations groups primarily involved with operations that deal with oil and hazardous substances and spill response are outlined below.

The Office of the Program Manager has primary responsibility for implementing the remediation activities, ensuring environmental compliance, and administering overall authority at RMA. The Office of the Program Manager (PM) consists of six divisions: Environmental Engineering, Technical Operations, PM Support, Technical Information, Lab Support, and Resource Management.

The Technical Operations Division (TOD) is the division primarily responsible for operations and maintenance of the oil and hazardous substance storage tanks addressed in the Spill Prevention, Control, and Countermeasure (SPCC) Plan. However, the Logistics Branch of the PM Support Division is responsible for operations and dispensing of the Mogas/Diesel tanks in the logistics for procurement and dispersement of supplies. In particular, personnel of the Facilities Maintenance Branch are involved in the maintenance of the tank facilities and the containment and cleanup of oil and hazardous substance spills. This division is divided into several branches which are responsible for providing engineering,

FIGURE II–B.1
PROGRAM MANAGER ROCKY MOUNTAIN ARSENAL
ORGANIZATION CHART



SECTION B2

ADMINISTRATION OF THE INSTALLATION SPILL CONTINGENCY PLAN

B2.1 LOCATION OF INSTALLATION SPILL CONTINGENCY PLAN

A current and complete copy of this Installation Spill Contingency Plan (ISCP) shall be retained in:

- The office of each member of the Installation Response Team including the Installation On-Scene Coordinator (IOSC) and each alternate;
- The supervisor's office of each of the activity locations;
- The Compliance Office;
- The operations duty station of all off-post assistance sources;
- The Emergency Control Center (ECC); and
- The field office of on-site contractors.

B2.2 INSTALLATION SPILL CONTINGENCY PLAN REVIEW AND AMENDMENTS

B2.2.1 Review

This ISCP must be reviewed, and immediately amended if necessary, when the following events occur:

- The ISCP fails in an emergency;
- The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that materially affects the potential for fires, explosions, or releases of hazardous substances or oil, or changes the response necessary in an emergency;
- The IOSC or any of the IOSC alternates changes;
- Changes in the coordination agreements occur;
- The list of emergency equipment changes; and

- In any event, once every three years following the effective date (40 CFR112.5; AR200-1, 8-8, d(1)). The Spill Prevention, Control, and Countermeasure (SPCC) Plan must be updated once every two years (AR200-1, 8-7, C(4)).

B2.2.2 Amendments

The scope of this ISCP is to provide spill prevention and response guidelines for the entire Rocky Mountain Arsenal (RMA) facility. Immediately following its effective date, all supervisors at the facility will review this ISCP to insure that all emergency response and notification procedures applicable to their areas of responsibility are incorporated into the plan.

If upon such review, it is determined that material and significant emergency response or notification procedures are not part of the ISCP, supervisors shall immediately prepare an amendment to the ISCP which fully, clearly, and concisely describes the procedure(s), and present the amendment to the Program Manager Rocky Mountain Arsenal (PMRMA) for approval.

Once approved, such amendment shall be appended at the beginning of this ISCP, and shall be prominently tabbed, "INDIVIDUAL SITE AMENDMENT." All such amendments shall be prepared, approved, and appended within 30 days of the effective date of this plan.

All amendments to this ISCP shall be documented as follows:

- by an appropriate endorsement,
- by the amendment number and the date of the amendment being placed at the bottom, right margin of the replacement page(s) containing the amendment(s), and
- by recertification by a registered professional engineer of changes to the Spill Prevention, Control, and Countermeasure (SPCC) Plan.

The Contingency Plan (CP) is a numbered and controlled document. In the event that the CP is amended, Program Manager Rocky Mountain Arsenal (PMRMA) will provide a copy of the amendment for each numbered document. It is the responsibility of the custodian to keep the document current.

B2.3 REGULATIONS AND REQUIREMENTS FOR SPILL PREVENTION AND RESPONSE

All federal agencies have been delegated the responsibility for preventing, controlling, and reporting potentially harmful releases of oil and hazardous substances within their jurisdictions by Executive Orders 11735 and 12315. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) Subchapter J, Part 300) outlines these federal agency responsibilities (40 CFR 300 Subpart B).

In accordance with the NCP, the U.S. Department of the Army directed all installation commanders to prepare and execute plans for the prevention, control, and reporting of releases of oil and hazardous substances (Installation Spill Contingency Plans) which fulfill regulatory requirements (Army Regulation (AR) 200-1, Environmental Protection and Enhancement, June 15, 1986). Specific statutes and regulations pertaining to releases of oil and hazardous substances are described in the following paragraphs.

The Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA) [42 United States Code (USC) 6901, et. seq.], regulates facilities which treat, store, and dispose of certain hazardous waste. Specific requirements have been promulgated by the U.S. Environmental Protection Agency (EPA) as "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities" (40 CFR Part 264) which apply at RMA by virtue of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 121 (42 USC 9621), including:

- 40 CFR 264.15 (Inspections);
- 40 CFR 264.16 (Training);
- 40 CFR Part 264, Subpart C (Preparedness and Prevention);
- 40 CFR Part 264, Subpart D (Contingency Plan and Emergency Procedures);
- 40 CFR 264.195 (Tank Inspections); and
- 40 CFR 264.71-72 (Manifests).

Other regulations promulgated by EPA pursuant to HSWA which similarly apply at RMA include Land Disposal Restrictions (40 CFR Part 268) and Standards for Underground Storage Tanks (40 CFR Part 280).

The Federal Water Pollution Control Act of 1976 (FWPCA), also known as the Clean Water Act (CWA), requires the prevention, control, and reporting of certain releases of oil and hazardous substances into the navigable waters of the United States, and the permitting by EPA of discharges from point sources. Specific requirements promulgated by EPA pursuant to FWPCA which apply at RMA under CERCLA Section 121 include:

- 40 CFR Part 112 (Oil Pollution Prevention);
- 40 CFR 110.10 (Notification of Discharge of Oil in Harmful Quantities);
- 40 CFR 117.21 (Notification of Discharge of Hazardous Substances in Reportable Quantities); and
- 40 CFR Part 122 (EPA-Administered Permit Programs: The National Pollutant Discharge Elimination System).

The Clean Air Act, as amended (1977) (42 USC 1857, et. seq.), established a national program for the attainment of air quality defined by standards promulgated

by EPA (40 CFR Chapter 1, Subchapter C). Hazardous air pollutants are listed under Section 112 of the Act.

CERCLA (1980), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), also known as Superfund (42 USC 9601, et. seq.), requires response to and reporting of releases of certain hazardous substances, pollutants, and contaminants into soil, air, and surface and ground water. Specific requirements have been promulgated by EPA in the NCP. Of particular significance here is 40 CFR Part 355, Emergency Planning and Notification.

Colorado State Law Colorado Revised Statutes (CRS) [CRS 25-8-601] requires that the Water Quality Control Division, Department of Health, be notified of the discharge of any pollutant into waters of the state.

Specific requirements for an SPCC Plan are contained within 40 CFR Part 112. This regulation requires that an SPCC Plan be written for any nontransportation-related facility that could reasonably be expected to discharge oil of any kind into the navigable waters of the United States (U.S.) as a result of geographical location, or meets one or more of the following requirements:

- The total aboveground oil storage capacity at the facility is greater than 1,320 gallons;
- A single aboveground storage tank larger than 660 gallons is in use;
- The total underground oil storage capacity is greater than 42,000 gallons; or
- Hazardous substances are stored in quantities that would present a threat to human health if discharged to the environment.

In addition, the U.S. Occupational Safety and Health Administration (OSHA) standard requires that an emergency response plan be developed and implemented to handle anticipated emergencies prior to the commencement of emergency response operations at uncontrolled hazardous waste sites being cleaned-up under government mandate (29CFR1910.120).

B2.4 TRAINING

AR 200-1 requires yearly training and exercising in the procedures of the ISCP to ensure the plan's capability to effect adequate spill response. Training is performed by and under the direction of the Deputy Program Manager and must meet the requirements of AR 200-1. SPCC training is discussed in Section B9, and general training is discussed in Appendix F.

SECTION B3

SPILL REPORTING AND RESPONSE

B3.1 IMMEDIATE SPILL REPORTING AND RESPONSE ACTIONS

B3.1.1 Spills

The primary concern in the event of a spill is the safety of persons in the vicinity of the release and the administration of emergency medical treatment to any persons injured by the release. If possible, persons discovering the release should take corrective action if they know the type of material spilled and are aware of required safety precautions. However, persons should never attempt immediate corrective action unless they are capable to do so, based on training requirements under the U.S. Occupational Safety and Health Administration (OSHA) standards, and experience, and their actions are in accordance with approved safety procedures such as use of required personal protection equipment. The Fire Prevention and Protection Branch (FPPB) should be contacted as soon as possible at extension 289-0223 or 289-0224 for the following:

- A spill of any material which does or may reach any waters of the state, surface or ground water, including spills which enter storm drains, sewer manholes, creeks, or any form of surface water; and
- A spill of petroleum, oils, or lubricants (POL), hazardous substance, or extremely hazardous substance in any quantity onto any surface.

The FPPB will provide initial emergency response actions and notify the Law Enforcement and Security Branch, the Installation On-Scene Coordinator (IOSC), and the Chemical Accident/Incident Response Officer (CAIRO) as appropriate. Minor spills occurring within the laboratory will be reported to the laboratory chief.

The course of action that the initial observer of a spill should take in the event of a spill is as follows:

- **PROTECT** self and others from harm.
  - Evacuate if necessary.
  - Use appropriate personal protective clothing and equipment.
  - Extinguish smoking materials away from the spill.
  - Remove all other sources of potential ignition.

- **STOP THE FLOW** if possible.
  - Close the valve.
  - Turn a ruptured or punctured drum so the point of exit is up.
  - Temporarily plug the leak.
  - Put the leaking container in another container (over-pack drum).
- **CONTAIN THE SPILL** if possible.
  - Cover floor or storm drains with a mat.
  - Shovel dirt, sawdust, sweeping compound, snow, etc. in the path of flow.
  - Place sweeping compound, sorbent pillows, sheets, and/or mats to contain the spreading spill.
- **NOTIFY** the FPPB at 289-0223 or 289-0024.
  - In all cases, the FPPB should be contacted immediately. If time allows, the supervisor of the area in which the spill occurred should also be notified.

SECTION B4

ACTIVATION OF THE INSTALLATION RESPONSE TEAM

The Installation Response Team (IRT) is a group of individuals at the installation who are able to effect a timely and efficient response to incidents at Rocky Mountain Arsenal (RMA). The IRT is comprised of the Emergency Control Center Team (ECCT) and the Emergency Response Team (ERT), and is headed by the Installation On-Scene Coordinator (IOSC) (Figure II-B.2). The responsibilities of the IRT are outlined in Section B5.

Table II-B.1 is a list of the primary and alternate IOSCs. When the primary IOSC is not onsite, one of the alternate IOSCs will be on call. Table II-B.2 is a list of the IRT members and designated alternates, excluding the IOSC.

Figure II-B.3 is a flow chart depicting immediate reporting, decision making, and the IRT activation process in an incident. The IOSC must be notified if an incident could cause off-post concern or involves any of the following:

- Hazardous waste,
- Hazardous substance,
- Surety materiels, or
- Petroleum products.

The IOSC then acts as the emergency coordinator for the incident.

The IOSC may activate members of the ECCT and/or the ERT depending upon the situation reported by the Fire Chief or Fire Department Officer in Charge (FDOIC), the IOSC's assessment of the situation, and based on the following incident categories found in Table II-B.3. Table II-B.3 outlines the hazard assessment determinations along with external notification requirements according to written agreements by Program Manager Rocky Mountain Arsenal (PMRMA). Other external notification requirements are discussed in Section B6.

If an incident is determined to be either a site emergency or a general emergency, the Emergency Control Center (ECC) must be activated. In this case the IOSC will direct Security to notify all IRT personnel.

Security will maintain an updated list of IRT members' names, work and home telephone numbers, and addresses in the event that the IOSC or other members of the IRT must be notified to respond to an incident. Security will also maintain a list of contractor/tenant contacts and emergency phone numbers.

FIGURE II-B.2

INSTALLATION RESPONSE TEAM (IRT) ORGANIZATION CHART

INSTALLATION ON-SCENE COORDINATOR (IOSC)

EMERGENCY CONTROL CENTER TEAM (ECCT)

- PUBLIC AFFAIRS OFFICER
- SAFETY OFFICER
- CHIEF, SECURITY OFFICE
- COMPLIANCE OFFICER
- CHIEF, FACILITIES MAINTENANCE BRANCH
- DOWNWIND HAZARD CALCULATOR
- PLOTTER
- RADIO OPERATOR, CHARLIE NETWORK
- COUNSEL
- RECORDER

EMERGENCY RESPONSE TEAM (ERT)

- SAFETY ENGINEER
- INDUSTRIAL HYGIENIST
- CHEMICAL ACCIDENT/ INCIDENT RESPONSE OFFICER (CAIRO) OR U.S. ARMY TECHNICAL ESCORT UNIT (USATEU) REPRESENTATIVE(S) OR EXPLOSIVES ORDNANCE DETACHMENT (EOD) REPRESENTATIVE(S)
- CHIEF OR FIRE DEPARTMENT OFFICER IN CHARGE, FIRE PREVENTION AND PROTECTION BRANCH (FPPB)
- SECURITY OFFICE REPRESENTATIVE(S)
- FACILITIES MAINTENANCE BRANCH REPRESENTATIVE(S)
- AIR MONITORING TEAM
  - DOWNWIND MONITORING TEAM AT THE HOTLINE
  - DOWNWIND MONITORING TEAM BETWEEN HOTLINE AND SITE BOUNDARY
- HOTLINE TEAM
  - DECONTAMINATION TEAM
- LOGISTICS BRANCH REPRESENTATIVE(S)
- CONTRACTING OFFICER
- CHEMIST

TABLE II-B.1
INSTALLATION ON-SCENE COORDINATORS, ADDRESSES, TELEPHONE NUMBERS, AND RADIO CALL SIGNS
(as of November 1, 1990)

Title	Name	Address	Home Telephone	Office Telephone	Pager	Cellular Phone	Radio Call Sign
PRIMARY							
Chief, Compliance Office	Richard Delameter	a/	weekends (719)596-0931 weekdays (303)399-0973	289-0441	a/	888-3760	a/
ALTERNATES							
1. Chief, Technical Operations Division	Dave Strang	a/	337-0240	289-0198 or 289-0118	a/	898-4215	a/
2. Chief, Environmental Engineering Division	Kevin Blose	a/	290-9541	289-0180 or 289-0159	a/	898-4216	C-42
3. Chief, Engineering Design Branch	Jim Green	a/	a/	289-0166 or 289-0137	a/	a/	a/

a/ This information will be provided at a later date.

R3L-1-11

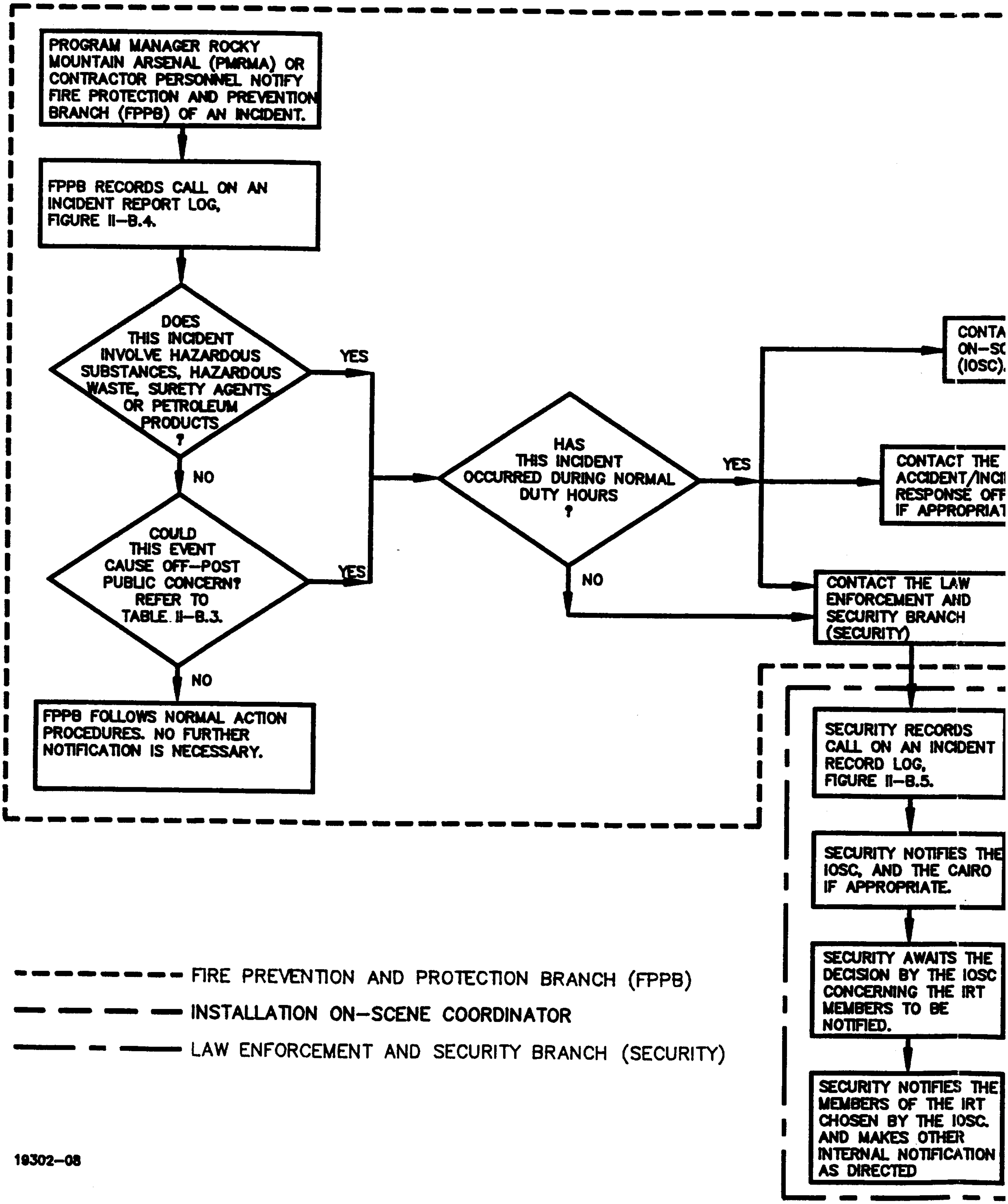
TABLE II-B.2
INSTALLATION RESPONSE TEAM PERSONNEL, ADDRESSES, TELEPHONE NUMBERS, AND RADIO CALL SIGNS
(as of November 1, 1990)

Position	Name	Home Telephone	Office Telephone	Pager	Cellular Phone	Radio Call Signs
Emergency Control Center Personnel						
Public Affairs Officer						
Primary	Bill Thomas	a/	289-0143	b/	888-3761	b/
Alternate	Ruth Mecham	a/	289-0337	b/		b/
Safety Officer	Joyce Beck	a/	289-0338	b/		b/
Safety Engineer	Cliff Wendel		289-0112	b/		b/
Chief, Law Enforcement and Security Branch	Bill Dowell	a/	289-0367	b/		b/
Chief, Facilities Maintenance Branch	James Farnham	a/	289-0412	b/		b/
Downwind Hazard Calculator						
Primary	Larry Dale	a/	289-0236	b/		b/
Alternate	Earl Mikula	a/	289-0331	b/		b/
Plotter						
Primary	Earl Mikula	a/	289-0331	b/		b/
Alternate	Tom Brooks	a/	289-0296	b/		b/
Radio Operator						
Primary	b/	b/	b/	b/		C6A
Alternate	Tom Brooks	a/	289-0296	b/		b/
Counsel	Lieutenant Colonel Guilford	a/	289-0147	b/		b/
Recorder						
Primary	Connie Kniss	a/	289-0141	b/		b/
Alternate	b/	a/	b/	b/		b/
Contracting Officer Representative	Gene Mallard	a/	289-1330	b/		b/

TABLE II–B.2 (Continued)
INSTALLATION RESPONSE TEAM PERSONNEL, ADDRESSES, TELEPHONE NUMBERS, AND RADIO CALL SIGNS
(as of November 1, 1990)

Position	Name	Home Telephone	Office Telephone	Pager	Radio Call Number
Compliance Officer					
Primary	Dave Parks	a/	289–0164	b/	b/
Emergency Response Team Personnel					
CAIRO					
Primary	Tom James	a/	289–0264	478–7537	C25A or C–11A
Alternate	Chief Wittig	a/	289–0223	b/	C25A
Fire Prevention and Protection Representative					
Primary	Chief Wittig	a/	289–0223	b/	b/
Alternate	Senior fire officer on duty	a/	289–0223	b/	b/
Security Office Representative	Bill Dowell	b/	289–0367	b/	b/
Facilities Maintenance Branch Representative					
Primary	James Farnham	a/	289–0412	b/	b/
Alternate	Don Marlow	a/	289–0417	b/	b/
Air Monitoring Team					
at the Hotline	Martin Sisneros	a/	289–0408	b/	C14A
	Roger Dixon	a/	289–0367	b/	b/
between the Hotline and RMA site boundary	Ray Vavrik	a/	289–0348	b/	C14B
	Randy Wheeler	a/	289–0348	b/	b/
Hotline Team					
Supervisor	Bob Stallworth	a/	289–0351	b/	C55
	Rick Halley	a/	289–0351	b/	b/
	Joe Burnham	a/	287–0398	b/	b/
Chemist					
Primary	Greg Mohrman	a/	289–0215	b/	b/
Alternate	Elijah Jones	a/	289–0195	b/	b/
Logistics Branch Representative					
Primary	Charles Halstead	a/	289–0400	b/	b/
Alternate	Harold Young	a/	289–0286	b/	b/

a/ The Law Enforcement and Security Branch keeps a current list of this information.
b/ This information will be provided at a later date.



PROGRAM MANAGER ROCKY MOUNTAIN ARSENAL (PMRMA) OR CONTRACTOR PERSONNEL NOTIFY FIRE PROTECTION AND PREVENTION BRANCH (FPPB) OF AN INCIDENT.
FPPB RECORDS CALL ON AN INCIDENT REPORT LOG, FIGURE II-B.4.
DOES THIS INCIDENT INVOLVE HAZARDOUS SUBSTANCES, HAZARDOUS WASTE, SURETY AGENTS, OR PETROLEUM PRODUCTS ?
YES
NO
COULD THIS EVENT CAUSE OFF-POST PUBLIC CONCERN? REFER TO TABLE II-B.3.
YES
NO
FPPB FOLLOWS NORMAL ACTION PROCEDURES. NO FURTHER NOTIFICATION IS NECESSARY.
HAS THIS INCIDENT OCCURRED DURING NORMAL DUTY HOURS ?
YES
NO
(IOSC).
CONTACT THE
CONTACT THE LAW ENFORCEMENT AND SECURITY BRANCH (SECURITY)
SECURITY RECORDS CALL ON AN INCIDENT RECORD LOG, FIGURE II-B.5.
SECURITY NOTIFIES THE IOSC, AND THE CAIRO IF APPROPRIATE.
SECURITY AWAITS THE DECISION BY THE IOSC CONCERNING THE IRT MEMBERS TO BE NOTIFIED.
SECURITY NOTIFIES THE MEMBERS OF THE IRT CHOSEN BY THE IOSC. AND MAKES OTHER INTERNAL NOTIFICATION AS DIRECTED
FIRE PREVENTION AND PROTECTION BRANCH (FPPB)
INSTALLATION ON-SCENE COORDINATOR
LAW ENFORCEMENT AND SECURITY BRANCH (SECURITY)

19302-08

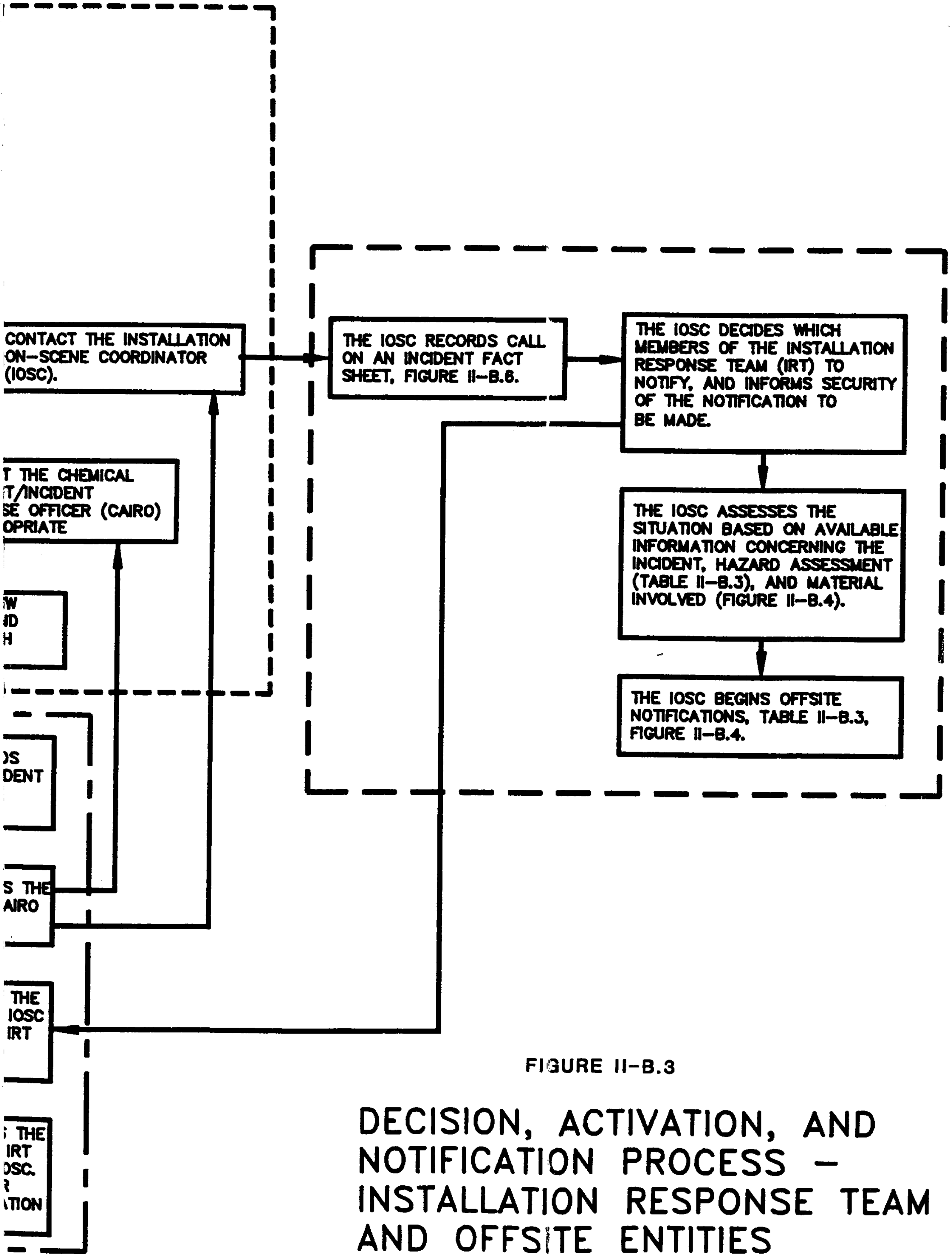


FIGURE II-B.3

DECISION, ACTIVATION, AND NOTIFICATION PROCESS – INSTALLATION RESPONSE TEAM AND OFFSITE ENTITIES

TABLE II–B.3
HAZARD ASSESSMENT AND EXTERNAL NOTIFICATION PLAN a/

TERM	DEFINITION	IMPLICATION	EXTERNAL NOTIFICATIONS	TELEPHONE NUMBERS
MINOR EVENT	Includes those situations which do not threaten the health and safety of the public, and would not cause public concern.	Will require action only by Program Manager Rocky Mountain Arsenal (PMRMA) personnel.	1) Only those notifications determined to be necessary by the Installation On-Scene Coordinator (IOSC)	
UNUSUAL EVENT	Includes those situations which could cause public concern but do not threaten the health and safety of the public (e.g. tornados which do not threaten to cause spills of hazardous materials, fires which are easily controlled by the Arsenal and are not spreading toxic fumes either on or off the Arsenal).	Will not require action by other Federal, State , or local units off the Arsenal to protect the local populations.	1) Governor of Colorado or designated representative 2) Division of Disaster Emergency Services (DODES) 3) EPA – Region VIII 4) Local response units as necessary – Adams County – Denver County	866–2471 279–8855 293–1788 288–1535 331–4146
ALERT	Includes those situations which currently pose no threat to persons on or off the Arsenal but are seen as having the potential to develop into Site Emergencies or General Emergencies (e.g. fire which could threaten to release toxic fumes on or off the Arsenal).	Could require action by other Federal, State , or local units off the Arsenal to protect the local populations.	1) Governor of Colorado or designated representative 2) DODES 3) EPA – Region VIII 4) Local response units as necessary – Adams County – Denver County	866–2471 279–8855 293–1788 288–1535 331–4146
SITE EMERGENCY	Includes those situations which threaten actual harm to the safety and health of personnel located on the Arsenal or to the Arsenal environment, but pose no threat to persons or property located off the Arsenal (e.g. spills of hazardous materials or wastes which can be contained on the Arsenal, spread of exclusion zones due to increased concentrations of hazardous air pollutants or due to weather or atmospheric conditions).	Could require action by other Federal, State , or local units off the Arsenal under certain circumstances (mutual aid fire fighting, etc...) but not for the purpose of protecting the local populations.	1) Governor of Colorado or designated representative 2) DODES 3) EPA – Region VIII 4) Local response units as necessary – Adams County – Denver County 5) Denver City Mayor 6) Commerce City Mayor	866–2471 279–8855 293–1788 288–1535 331–4146 575–2721 289–3611
GENERAL EMERGENCY	Includes those situations which threaten actual harm to the safety and health of persons located on or off the Arsenal (e.g. spills of hazardous materials or wastes into a creek flowing off the Arsenal, grass fires which threaten to burn off–post, spread of exclusion zones to or outside of Arsenal boundaries due to increased concentrations of hazardous pollutants or due to weather or atmospheric conditions).	Will require action by Federal, State, or local units off the Arsenal to protect the health and safetly of the local populations.	1) Governor of Colorado or designated representative 2) DODES 3) EPA – Region VIII 4) Local response units as necessary – Adams County – Denver County 5) Denver City Mayor 6) Commerce City Mayor	866–2471 279–8855 293–1788 288–1535 331–4146 575–2721 289–3611

a/ These notifications are based on Standing Operating Procedure No. GC–01. Other external notification requirements are shown in Figure II–B.4.

Security will use these lists to record those personnel whom the IOSC determines should be notified. When Security contacts Program Manager Rocky Mountain Arsenal (PMRMA) or contractor personnel, the notification time will also be recorded. Security and the IOSC will track who has and who has not been notified.

The ECC is located in Room 231 of the Administration Building (Building 111). The ECC is equipped with telephones, a radio capable of transmitting and receiving on the Security and Emergency Radio Networks, detailed maps of RMA, a copy of this contingency plan (CP), and a desktop computer used to calculate the downwind hazard. The alternate ECC is the Fire Station (Building 312).

The ECC need not be activated if an incident is classified as a minor event, an unusual event, or an alert. In these less serious events, only members of the IRT needed to aid in the response and cleanup effort for the particular incident will be notified. Again, the IOSC will direct Security to contact the appropriate IRT personnel.

Incident response procedures are begun as soon as the nature and hazard of the incident are known. Response procedures, appropriate to the incident, are located in this document as follows:

- Procedures for spill mitigation and cleanup, Section B7 of this ISCP;
- Site-specific responses, Appendix A - Site-Specific Action Plans; and
- Specific spill responses, Appendix B - Spill Response Procedures.

SECTION B5

RESPONSIBILITIES OF THE INSTALLATION RESPONSE TEAM

The Installation Response Team (IRT) is comprised of the Emergency Control Center Team (ECCT) and Emergency Response Team (ERT) (Figure II-B.1), and is headed by the Installation On-Scene Coordinator (IOSC). The responsibilities of the IOSC and the individual members of the IRT are discussed in the following paragraphs. The IRT includes, but is not limited to, the following members.

B5.1 INSTALLATION ON-SCENE COORDINATOR

The IOSC is responsible for coordinating the activities of the IRT in the containment, control, and cleanup of accidental releases or other incidents as appropriate. He is the primary point of contact in an incident. The IOSC must determine the hazard potential of an incident and determine whether a release is reportable under state or federal guidelines (Volume II, Attachment B, Appendix E). The IOSC also notifies appropriate local, state, federal, and Army agencies (see Section B6). For Program Manager Rocky Mountain Arsenal (PMRMA), the IOSC is the Chief, Compliance Office. The Alternate IOSC is the individual who performs the duties of the IOSC in his absence. The IOSC and alternates are listed below.

- <u>Installation On-Scene Coordinator (IOSC)</u>

  Chief, Compliance Office
  AMXRM-C
  (303) 289-0441
  DSN 556-2441

- <u>First Alternate</u>

  Chief, Technical Operations Division
  AMXRM-T
  (303) 289-0198
  DSN 556-2198

- Second Alternate

  Chief, Environmental Engineering Division
  AMXRM-E
  (303) 289-0180
  DSN 556-2180

- Third Alternate

  Chief, Engineering Design Branch
  AMXRM - TED
  (303) 289-0166
  DSN 556-2166

B5.2 FIRE PREVENTION AND PROTECTION BRANCH REPRESENTATIVE

Rocky Mountain Arsenal (RMA) maintains its own fire department, the Fire Prevention and Protection Branch (FPPB) which is part of the Program Manager Support Division. The fire department is located in Building 312 near the South Plants Area. All buildings, structures, and facilities at RMA are inspected at weekly, monthly, or semiannual intervals by the FPPB, in accordance with recommended frequencies and local requirements. Fire extinguishers are inspected on a monthly basis. Whenever deemed necessary, firefighters and fire prevention/control apparatus are furnished to stand by during any welding, cutting, or other hazardous operations or loading/unloading processes. Firefighters will inspect the site if any cutting and/or welding operations occur outside of established welding areas prior to issuing or closing a Hot Work Permit. Spot inspections are frequently made during these operations to assure that fire safety requirements are being observed. Where accidental spills have occurred, the FPPB representative will inspect the spill site for any potential hazards which may be present. If the potential for a fire exists, preventive and corrective measures must be taken prior to containment and cleanup procedures. If a fire is present at the spill site, proper types of equipment and chemicals must be used in containing the fire. The FPPB representative and alternate are listed below. In addition, the FPPB is in charge of emergency care for PMRMA personnel and contractor personnel.

- Fire Prevention and Protection Branch Representative

  Chief, Fire Prevention and Protection Branch
  AMXRM-SFP
  (303) 289-0192
  (303) 289-0223 (24-hour emergency number)
  DSN 556-2192

- Alternate

  Senior fire officer on duty
  (303) 289-0190
  (303) 289-0223 (24-hour emergency number)
  DSN 556-2192

B5.3 COMPLIANCE OFFICE-SAFETY REPRESENTATIVES

The Safety and Occupational Health Manager is responsible for the accident/injury reporting for higher headquarters. The Safety and Occupational Health Manager will be situated in the Emergency Control Center (ECC). The Safety Engineer and the Industrial Hygienist shall be first responders. These persons shall be responsible for determining the level of personal protective clothing and equipment and other safe procedures to be followed.

- Safety and Occupational Health Manager

  (303) 289-0338
  DSN 556-2338

- Industrial Hygienist

  (303) 289-0112
  DSN 556-2112

- Safety Engineer
  (303) 289-0112
  DSN 556-0112

B5.4 FACILITIES MAINTENANCE BRANCH REPRESENTATIVE

The Facilities Maintenance Branch is primarily responsible for the maintenance of buildings, roads, grounds, water supply, wastewater systems, and electrical systems. Under the direction of the IOSC, the Facilities Maintenance representative provides the capability for moving soil and sand, digging ditches, opening manholes, and constructing barriers and other appropriate structures necessary for adequate spill control and cleanup procedures. This team member is also responsible for evaluating the effects of the spill on, and directing any actions that must be taken in the area of, electrical power, drinking water supply, and wastewater disposal systems.

- Facilities Maintenance Branch Representative

  Chief, Facilities Maintenance Branch
  AMXRM-TF
  (303) 289-0412
  DSN 556-2412

- Alternate

  Foreman, Maintenance Section
  AMXRM-TFR
  (303) 289-0417
  DSN 556-2417

B5.5 CHEMIST

The organic and/or analytical chemist assigned to the IRT recommends the procedures and techniques to be used to identify, sample, contain, disperse, reclaim, and remove oil and hazardous substances at the spill area. The chemist is responsible for determining and reporting to the IOSC whether any potentially harmful situation and/or reactions may occur when containing or cleaning up the accidental release of oil or hazardous substances. The chemist provides information on the chemical properties of the spilled material and the compatible products to be used in the containment and cleanup. Coordination with the IOSC provides for the safety of all personnel and the efficient containment and cleanup at the discharge site.

- <u>Chemist</u>

  Chief, Laboratory Support Division
  AMXRM-LS
  (303) 289-0215
  DSN 556-2215

- <u>Alternate</u>

  Chief Analytical Branch
  AMXRM-LSA
  (303) 289-0195
  DSN 556-2195

B5.6 LAW ENFORCEMENT AND SECURITY BRANCH REPRESENTATIVE

Security personnel are responsible for the security of the spill site. Responsibilities include assistance in the evacuation of personnel from the site, and provision for traffic control points at appropriate locations in close proximity to the release in order to restrict access to authorized personnel and equipment.

- <u>Security Officer</u>

  Chief, Law Enforcement and Security Branch
  AMXRM-SS
  (303) 289-0367
  (303) 289-0369/0372 (24-hour emergency number)
  DSN 556-0372

- <u>Alternate</u>

  Senior Security officer on duty
  (303) 289-0369/0372 (24-hour emergency number)
  DSN 556-0372

B5.7 PUBLIC AFFAIRS OFFICER

The Public Affairs Officer (PAO) is responsible for communications with the press and the public. This is a sensitive position, particularly in the event of a major spill or one that involves visible damage to adjoining areas not belonging to RMA. All communication with the public and the press will be handled by the PAO.

- Public Affairs Officer

  AMXRM-PAO
  (303) 289-0143
  DSN 556-0143

B5.8 COUNSEL

It is this individual's responsibility to advise the Program Manager and the IOSC of possible legal ramifications associated with the spill. Counsel also ensures that information, records, photographs, and sampling, if necessary, is adequate to meet all legal requirements in the event that a spill crosses the installation boundary or contaminates ground water.

- Counsel

  AMXRM-GC
  (303) 289-0147
  DSN 556-2147

B5.9 COMPLIANCE OFFICER

The compliance officer assigned to the IRT is responsible for providing guidance on the regulatory requirements outlined in federal legislation such as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorized Act (SARA), the Resource Conservation and Recovery Act (RCRA), and the Clean Water Act (CWA). For example, the compliance officer identifies reportable spills and advises the IOSC on notification of the proper authorities in the appropriate time frame. The compliance officer also provides assistance and follow-up during spill cleanup activities to ensure that all oil or hazardous substances are disposed of properly.

- Compliance Officer

  AMXRM-C
  (303) 289-0164
  DSN 556-2441

B5.10 CHEMICAL ACCIDENT/INCIDENT RESPONSE OFFICER

[Information Under Development]

B5.11 AIR MONITORING TEAM

[Information Under Development]

B5.12 LOGISTICS BRANCH REPRESENTATIVE/CHIEF

[Information Under Development]

B5.13 PLOTTER

[Information Under Development]

B5.14 RADIO OPERATOR - CHARLIE NETWORK

[Information Under Development]

B5.15 RECORDER

[Information Under Development]

B5.16 HOTLINE TEAM

[Information Under Development]

B5.17 DOWNWIND HAZARD CALCULATOR

[Information Under Development]

SECTION B6

OFFSITE NOTIFICATIONS

Notification of offsite entities by the Installation On-Scene Coordinator (IOSC) is based on the following:

- the hazard assessment of the incident, and
- in the event of a release, the material and quantity released.

Table II-B.3 (Section B5) lists hazard assessment terms, definitions, implications, required verbal notifications, and telephone numbers.

If an incident is defined as a **Minor Event**, only those notifications determined to be necessary by the IOSC are required.

If an incident is defined as either an **Unusual Event** or an **Alert**, the following notifications are required:

- Governor of Colorado or designated representative,
- Division of Disaster Emergency Services (DODES),
- U.S. Environmental Protection Agency (EPA) - Region VIII, and
- Local response groups (e.g., Adams County and Denver County) as necessary.

If an incident is defined as either a **Site Emergency** or a **General Emergency** the following notifications are required:

- Governor of Colorado or designated representative,
- DODES,
- EPA - Region VIII,
- Local response groups (e.g., Adams County and Denver County) as necessary,
- Denver City Mayor, and
- Commerce City Mayor.

Figure II-B.4 is a flow chart depicting the decision and notification process to be followed if an incident involves the release of materials.

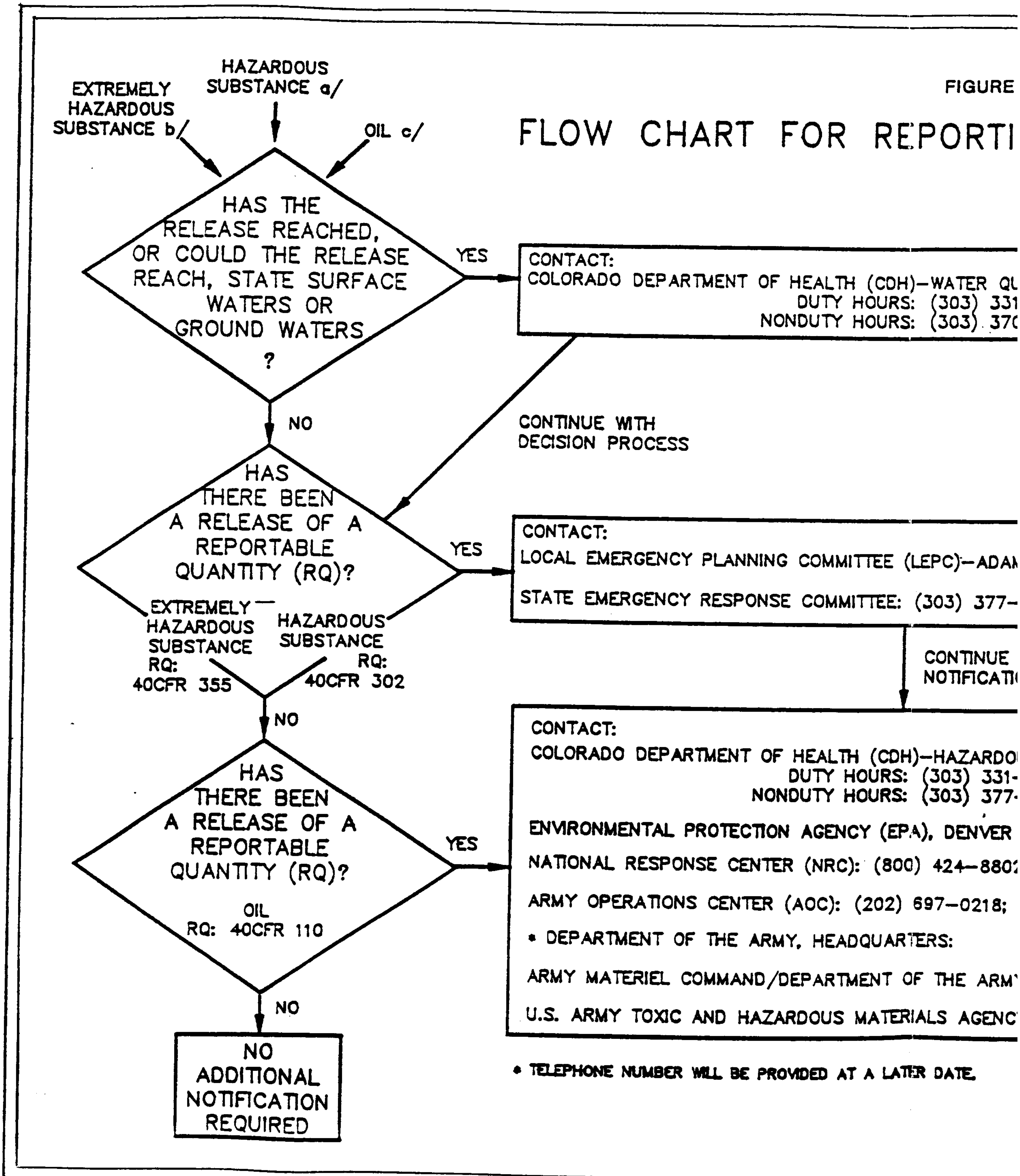


FIGURE
FLOW CHART FOR REPORTI
EXTREMELY HAZARDOUS SUBSTANCE b/
HAZARDOUS SUBSTANCE a/
OIL c/
HAS THE RELEASE REACHED, OR COULD THE RELEASE REACH, STATE SURFACE WATERS OR GROUND WATERS ?
YES
CONTACT:
COLORADO DEPARTMENT OF HEALTH (CDH)—WATER QU
DUTY HOURS: (303) 331
NONDUTY HOURS: (303) 370
NO
CONTINUE WITH DECISION PROCESS
HAS THERE BEEN A RELEASE OF A REPORTABLE QUANTITY (RQ)?
EXTREMELY HAZARDOUS SUBSTANCE RQ: 40CFR 355
HAZARDOUS SUBSTANCE RQ: 40CFR 302
YES
CONTACT:
LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)—ADAM
STATE EMERGENCY RESPONSE COMMITTEE: (303) 377–
CONTINUE
NOTIFICATI
NO
HAS THERE BEEN A RELEASE OF A REPORTABLE QUANTITY (RQ)?
OIL RQ: 40CFR 110
YES
CONTACT:
COLORADO DEPARTMENT OF HEALTH (CDH)—HAZARDO
DUTY HOURS: (303) 331-
NONDUTY HOURS: (303) 377-
ENVIRONMENTAL PROTECTION AGENCY (EPA), DENVER
NATIONAL RESPONSE CENTER (NRC): (800) 424–880
ARMY OPERATIONS CENTER (AOC): (202) 697–0218;
* DEPARTMENT OF THE ARMY, HEADQUARTERS:
ARMY MATERIEL COMMAND/DEPARTMENT OF THE ARM
U.S. ARMY TOXIC AND HAZARDOUS MATERIALS AGENC
NO
NO ADDITIONAL NOTIFICATION REQUIRED
* TELEPHONE NUMBER WILL BE PROVIDED AT A LATER DATE.

FIGURE II-B.4

:PORTING RELEASES TO OFFSITE ENTITIES

)–WATER QUALITY CONTROL DIVISION
: (303) 331–4530
: (303) 370–9395

LEPC)–ADAMS COUNTY: (303) 289–5441

(303) 377–6326

CONTINUE WITH
NOTIFICATIONS

)–HAZARDOUS MATERIALS & WASTE MANAGEMENT DIVISION
(303) 331–4830
(303) 377–6326

A), DENVER EMERGENCY RESPONSE BRANCH: (303) 298–1788

) 424–8802

697–0218; DSN 227–0218

ERS:

F THE ARMY: (AMC/DA): DSN 284–9016

ALS AGENCY (USATHAMA): (301) 671–4714/2427

R DATE.

a/ A Hazardous Substance is any substance pursuant to 40 CFR Part 302. A list of hazardous substances and reportable quantities is provided in Volume II, Attachment B, Appendix E.

b/ An Extremely Hazardous Substance is a substance listed in Appendix A and B or 40 CFR Part 355. A list of extremely hazardous substances and their reportable quantities is provided in Volume II, Attachment B, Appendix E.

c/ Oil includes oil of any kind or in any form, including, but not limited to: petroleum, fuel, oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil (Army Regulation 200–1).

If a release has reached, or could reach, State of Colorado air, surface waters or ground waters, the Colorado Department of Health (CDH) must be notified immediately.

If there has been a release to the environment of a reportable quantity (RQ) of an **extremely hazardous substance** or a **hazardous substance**, immediate notification of the following is required:

- Local Emergency Planning Committee,
- State Emergency Response Committee,
- CDH - Hazardous Materials and Waste Management Division,
- EPA - Denver Emergency Response Branch,
- National Response Center (NRC),
- Army Operations Center (AOC),
- Army Materiel Command/Department of the Army (AMC/DA), and
- U.S. Army Toxic and Hazardous Materials Agency (USATHAMA).

If there has been a release of an RQ of **oil of any kind or in any form**, immediate notification is required as follows:

- CDH - Hazardous Materials and Waste Management Division,
- EPA - Denver Emergency Response Branch,
- NRC,
- AOC,
- AMC/DA, and
- USATHAMA.

Reportable quantities for hazardous and extremely hazardous substances are listed in Appendix E.

If it is determined that notifications must be made, the verbal notification should include the following:

- Chemical name,
- Quantity of release,
- Time and duration of release,
- Medium or media into which the release occurred,
- Known or anticipated health risks,
- Precautions taken, and
- Name and telephone number of contact person.

All of this information will be tracked from the beginning of the incident by the Fire Prevention and Protection Branch (FPPB), the Law Enforcement and Security Branch, and the IOSC.

SECTION B7

SPILL MITIGATION AND CLEANUP

B7.1 SPILL RESPONSE ACTIONS

Initial spill response actions are to **PROTECT SELF AND OTHERS FROM HARM**, to stop the flow, contain the spill, and notify the Fire Prevention and Protection Branch (FPPB).

The following discussion will expand on spill response by reviewing general containment, cleanup, and decontamination procedures which apply regardless of whether or not an emergency exists. Note that responsibility for many of these steps will rest with the Installation Response Team (IRT) or with contracted cleanup firms.

B7.1.1 Containment and Cleanup

All actions described in this section must be taken within the bounds of safety.

- **STOP DISCHARGE.** The first step is to stop adding to the release. As authorized in accordance with your local standing operating procedures (SOP), you should:
  - Turn off pumps or closing valves.
  - Return container to upright position.
  - Patch holes.
  - Transfer material to another container, and/or
  - Move container to a less dangerous location.
- **CONTAIN SPILL.** The expansion of an existing spill can be prevented or slowed:
  - On water (if the material floats), by use of floating barriers (booms), porous and/or absorbent materials, or by "herding" using propellers, water hose streams, or chemicals that change the surface tension of the spilled material.
  - On land, by porous or absorbent barriers in consolidated (booms, pillows, or sheets) or particulate form; and or

- **COLLECT AND RECOVER.** Liquid or solid spilled material is gathered together so it can be separated and recontainerized in contaminated media or filtered form.

  - Absorption Procedures

    The sorbent is distributed using mops, pillows, sheets, or booms, or loose chips, particles, beads, or fibers (scattered by hand or by blower).

    The sorbent with its absorbed spill material is collected by skimming, direct pickup, filtering, or settling. Because of the added weight, this can be a cumbersome process and the collected material remains hazardous.

    If desired, the hazardous material can be squeezed, wrung, or centrifuged out of some types of sorbents so that the sorbent can continue to be used for treating the spill.

  - Recovery Methods

    On water, floating materials are skimmed off with their absorbents, run through separators, and stored. Some types of absorbent may be reused. Materials which dissolve cannot typically be recovered; materials which sink may be pumped or dredged from the bottom, then separated and stored.

    On land, spilled material may be diked by absorbents or other material, pumped or drained to a diked (and possibly lined) temporary storage area, or the absorbents may be used to soak up the entire spill. Recovery is accomplished by pumping to storage or by separation from the absorbents used. Contaminated soil may need to be removed and replaced in some cases.

    Some absorbents will prevent further release of flammable or toxic fumes from spilled liquids. Commercially available, powdered absorbents, while usually not suitable for containment of larger spills due to their high cost, can be used for small spills or for final collection of evaporating residue after most of a large spill has been recovered. Many of the commercial absorbents contain activated carbon, and activated carbon can be used directly. To ensure maximum efficiency in control of the spill and to minimize the potential for adverse chemical reactions between the absorbent and the spill, sorbents must be appropriate to the specific spilled material.

  - Absorbent Materials

    Preferred sorbents are inert nonreactive clay minerals (neutralizing agents may be added), activated carbon (for control of flammable vapors), or specific formulations of chemical firms which provide automatic neutralization and/or vapor control. "Imbiber beads" are excellent for polychlorinated biphenyls (PCBs) and other hazardous wastes because they hold the absorbed chemical in an essentially nonleachable form. Different

chemicals may require different absorbents. For example, elemental mercury liquid gives off toxic vapors; it requires special materials to attract the very small droplets of the metal likely to remain undetected on floors and, thus, to prevent evaporation of the vapors. Hydrofluoric acid is extremely toxic in addition to being a strong acid, and so requires more than a neutralizer for spill absorption.

- Emission Containment

  In the event of toxic air emissions such as chemical agents, coverage with soil may be appropriate.

- **TREAT IN PLACE.** A spill, or nonrecoverable portions of it, may be treated in place to render it nonhazardous.

  - Burning

    Ignition of the spill is dangerous and should be avoided unless it has already occurred by accident. Burning could be useful to remove floating flammable liquids or to stop downwind travel of flammable gases.

  - Neutralize

    Acids and alkalis can be neutralized (returned to a neutral pH). Neutralizing does not affect any toxic characteristics of the material. A pH meter, litmus paper, pH paper or other means of testing pH is needed, along with a noncorrodible stirrer (glass, ceramic, or Teflon® rods, or noncorrodible floor-type squeegee) and enough neutralizer to equal approximately three times the volume or weight of the spilled chemical. After sufficient mixing, the resulting pH should be between 6 and 8. (Concentrated acids have a pH below 3; alkalis are usually above 12.) The neutralizer must be weak, or adverse reactions may result. Premixing a weak neutralizer with a nonreactive particulate absorbent serves to extend the available quantity of absorbent as well as improving its capacity to prevent contamination by corrosives.

    Strong oxidizers and reducing agents may also be "neutralized", but this is an entirely different process and must be specific to the particular chemical. Minimizing the dangerous properties of such chemicals through the use of neutralizing chemicals should only be done under the supervision of a chemist.

B7.1.2 Disposal

Recovered chemicals must be stored appropriately prior to reuse or disposal. If they will be disposed of, they must be stored as hazardous waste and there are then specific requirements for storage, packaging, labeling, and disposal of the material. Disposal will be in accordance with appropriate regulations and procedures.

B7.1.3 Decontamination/Neutralization

Decontamination/Neutralization of work areas is usually an installation responsibility through the Safety Office or industrial hygienist. Many commercial chemical and safety equipment firms have decontamination kits available for protective equipment. Personnel at the facility will usually be required to decontaminate their own personal equipment. Besides cleaning personal protective equipment after exposure to a release, some chemicals require cleaning of equipment at the end of a work shift. Wastes generated in decontamination may require evaluation to determine proper disposal.

Outdoor surfaces may require final cleaning via steam and hot water, abrasive blast cleaning (dry or wet), high pressure water, burning or surface sorption. Indoor surfaces may be cleaned by modified versions of the above methods. Some materials are not very soluble in water and some other solvent would be preferable.

Contaminated response equipment and clothing should be rinsed or wiped with a solvent appropriate to the spilled material (which does not react with or dissolve the equipment) after each incident. It should also be checked for cracking, wearing, and other signs of deterioration every 1 to 3 months.

Personal and/or supplied clothing which must be laundered should be washed separately. It is generally best to run an empty tub full of water between launderings. Badly contaminated clothes should be discarded in an appropriate manner. Shoes, watchband, cap, and eyeglasses are clothing and must be decontaminated. To avoid contaminating personal garments, use overboots, goggles, etc., during cleanup operations.

Exposed skin should be washed thoroughly with soapy water after exposure and after spill response is completed (even temporarily). This applies even if no contamination was noticed. During spill response, avoid touching the face or eyes without thoroughly washing hands. Change clothes before eating; and do not enter lunch areas while wearing contaminated clothing. Do not smoke during spill cleanup.

Contact lenses should not be worn at any time around hazardous chemicals, especially when a spill has occurred. If the wearing of contact lenses is unavoidable, the user should wear special sealed goggles or a full face mask and carry a contact lens extractor whose use has been explained to all co-workers.

B7.1.4 Specific Substance Spills

Procedures and techniques for handling specific spills are provided in Appendix B of this Installation Spill Contingency Plan (ISCP). The substances discussed include:

- Oils,
- Acids,
- Caustics,
- Flammable and Combustible Liquids,
- Pesticides, and
- Chlorine Gas.

SECTION B8

POST-RESPONSE ACTIVITY

B8.1 NOTIFICATION OF END OF EMERGENCY AND RESUMPTION OF OPERATIONS

When all emergency response activity has ceased, the Installation On-Scene Coordinator (IOSC) shall provide notification of these facts to all offsite parties who received verbal notification of the incident.

If the facility ceases operations in response to a fire, explosion, natural disaster, or release that may present a hazard to human health or the environment, the IOSC will verify, via line management, that the incident area and emergency equipment cleanup is complete. Program Manager Rocky Mountain Arsenal (PMRMA) will notify the Colorado Department of Health (CDH) before normal operations are resumed in the affected area(s). The notification will indicate that cleanup procedures are complete and that emergency equipment is clean and fit for its intended use. The U.S. Environmental Protection Agency (EPA) Region VIII and the U.S. Army Materiel Command (AMC) will also be notified of intended facility restart, if necessary.

B8.2 DISPOSITION OF CONTAMINATED MATERIAL

All contaminated material, liquid and solid, which was generated as a result of cleanup activity shall be handled, stored, and disposed of in accordance with applicable federal and state statutes and regulations.

B8.3 DECONTAMINATION OF PERSONNEL AND EQUIPMENT

Personnel. All emergency response personnel who have been exposed to hazardous substances during control and cleanup operations shall undergo personnel decontamination in accordance with applicable regulations and standards. Contaminated personal-protection clothing and equipment shall similarly be subjected to appropriate decontamination and disposition procedures.

Equipment. All equipment which has been exposed to hazardous substances during control and cleanup operations shall be fully decontaminated in accordance with applicable regulations and standards before being returned to service or disposed of.

B8.4 RELEASE INVESTIGATION

Whenever a release of oil or hazardous substances has been controlled and cleaned up pursuant to this Installation Spill Contingency Plan (ISCP), the Compliance Officer shall investigate the release. He shall be assisted in his investigation by the members of the Installation Response Team (IRT).

The Compliance Officer shall prepare a report of his investigation in a form approved by the IOSC. The report shall contain the following findings:

- A description of the release;
- The cause of the release;
- Recommendations for corrective action;
- An evaluation of the effectiveness of this ISCP in responding to the release, and recommendations for corrective action, if appropriate; and
- An evaluation of the effectiveness of emergency response personnel and equipment, and recommendations for corrective action, if appropriate.

The report shall be submitted to the IOSC for approval. The IOSC shall institute corrective action, as appropriate.

B8.5 WRITTEN REPORTS AND RECORDKEEPING

Written reports include installation records, the incident assessment report, and the facility restart notification.

B8.5.1 Installation Records

The Fire Prevention and Protection Branch (FPPB) records all incoming incident reports on an Incident Report Log (Figure II-B.5). If it is appropriate, the Law Enforcement and Security Branch is notified of an incident by the FPPB. The Law Enforcement and Security Branch records all relayed incident information on an Incident Record Log (Figure II-B.6). The IOSC is notified of an incident by the FPPB and/or Law Enforcement and Security Branch as appropriate. The IOSC documents all emergencies on an Incident Fact Sheet (Figure II-B.7). The Incident Fact Sheet should be updated as the incident unfolds.

The Incident Fact Sheet is used to provide PMRMA with facts about an unplanned event and to disseminate information to those responsible for preventing recurrence of similar events. A copy of each completed Incident Fact Sheet is retained by the IOSC at Rocky Mountain Arsenal (RMA) as part of the operating record. The Incident Report Log (Figure II-B.5) completed by the FPPB, and the Incident Record Log (Figure II-B.6) completed by the Law Enforcement and Security Branch, are also retained by the IOSC as part of the incident record.

FIGURE II-B.5

FIRE PREVENTION AND PROTECTION BRANCH INCIDENT REPORT LOG

PAGE 1 OF

ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO
FIRE PREVENTION AND PROTECTION BRANCH

1. INCOMING CALL
   A. DATE OF INCIDENT/TIME ________ / ________
   B. FROM ________
   C. ORIGINATOR OF VERBAL INCIDENT REPORT ________

2. INCIDENT IDENTIFICATION
   A. LOCATION OF INCIDENT ________
   B. INCIDENT TYPE: ☐ SPILL ☐ FIRE ☐ CHEMICAL AGENT ☐ OTHER ________
   C. INJURIES ☐ YES ☐ NO ☐ TYPE: ________

3. DESCRIPTION OF INCIDENT
   A. TYPE AND/OR CHEMICAL NAME, AND ESTIMATED AMOUNT OF MATERIAL
   B. MEDIUM OR MEDIA INTO WHICH RELEASES OCCURRED
   C. RECEIVING STREAM OF WATERS
   D. DURATION OF DISCHARGE
   E. MAGNITUDE OF THREAT TO PUBLIC HEALTH OR THE ENVIRONMENT

4. NOTIFICATION OF SECURITY
   A. TIME OF NOTIFICATION
   B. NAME OF PERSON NOTIFIED

5. NOTIFICATION OF INSTALLATION ON-SCENE COORDINATOR (IOSC):
   A. TIME OF NOTIFICATION
   B. NAME OF PERSON NOTIFIED

FIGURE II-B.6

LAW ENFORCEMENT AND SECURITY BRANCH
INCIDENT RECORD LOG

PAGE 1 OF

ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO
SECURITY OFFICE

1. INCOMING CALL
   A. DATE OF INCIDENT/TIME ______________ / ______________
   B. FROM ______________
   C. ORIGINATOR OF VERBAL INCIDENT REPORT ______________

2. INCIDENT IDENTIFICATION
   A. LOCATION OF INCIDENT ______________
   B. INCIDENT TYPE: ☐ SPILL ☐ FIRE ☐ CHEMICAL AGENT ☐ OTHER ______________
   C. INJURIES: ☐ YES ☐ NO ☐ TYPE: ______________

3. DESCRIPTION OF INCIDENT
   A. TYPE AND/OR CHEMICAL NAME, AND ESTIMATED AMOUNT OF MATERIAL
   B. MEDIUM OR MEDIA INTO WHICH RELEASES OCCURRED
   C. RECEIVING STREAM OF WATERS
   D. DURATION OF DISCHARGE
   E. MAGNITUDE OF THREAT TO PUBLIC HEALTH OR THE ENVIRONMENT
   ADDITIONAL INFORMATION MAY BE INCLUDED ON THE BACK

4. NOTIFICATION OF INSTALLATION ON-SCENE COORDINATOR (IOSC) OR ALTERNATE
   A. TIME OF NOTIFICATION
   B. NAME OF PERSON NOTIFIED

5. PREVAILING WIND SPEED AND DIRECTION

6. RETURN CALL FROM IOSC
   A. TIME OF RETURN CALL
   B. NAME OF PERSON RETURNING CALL
   C. INSTRUCTIONS
      1.) PROCEED WITH NOTIFICATION OF INSTALLATION RESPONSE TEAM (IRT) OR:
      2.) DO NOT NOTIFY IRT PERSONNEL

9302-02

FIGURE II-B.7

INSTALLATION ON-SCENE COORDINATOR
INCIDENT FACT SHEET

PAGE 1 OF

1. ROCKY MOUNTAIN ARSENAL
2. COMMERCE CITY, COLORADO
3. NAME AND PHONE NUMBER OF IOSC ______________________
4. DATE OF INCIDENT ______________________

6. INCIDENT IDENTIFICATION
   A. LOCATION OF INCIDENT ______________________
   B. INCIDENT TYPE ☐ SPILL ☐ FIRE ☐ CHEMICAL AGENT ☐ OTHER ______________________
   C. INJURIES ☐ YES ☐ NO ☐ TYPE: ______________________

7. DESCRIPTION OF INCIDENT
   A. TYPE AND/OR CHEMICAL NAME, AND ESTIMATED AMOUNT OF MATERIAL
   B. MEDIUM OR MEDIA INTO WHICH RELEASE OCCURRED
   C. RECEIVING STREAM OR WATERS
   D. DURATION OF DISCHARGE
   E. MAGNITUDE OF THREAT TO PUBLIC HEALTH OR THE ENVIRONMENT
   ADDITIONAL INFORMATION MAY BE INCLUDED ON THE BACK

8. CONSEQUENCES OF INCIDENT

9. HAZARD ASSESSMENT (TABLE 1.3)
   ☐ MINOR EVENT ☐ ALERT ☐ GENERAL EMERGENCY
   ☐ UNUSUAL EVENT ☐ SITE EMERGENCY

10. ACTIONS TAKEN (A) OR PLANNED (B)

11. ANTICIPATED CLEANUP EFFECTIVENESS

12. APPARENT CAUSE(S) OF INCIDENT

9302-01

INSTALLATION ON-SCENE COORDINATOR
INCIDENT FACT SHEET

13. AGENCIES NOTIFIED/TIME OF NOTIFICATION/PERSON CONTACTED(TABLE 1.3 AND FIGURE 1.3)

☐ GOVERNOR OF COLORADO OR DESIGNATED REPRESENTATIVE .... (303) 866-2471

☐ DODES. .... (303) 279-8855

☐ EPA – REGION VIII .... (303) 293-1788

LOCAL RESPONSE UNITS AS NECESSARY

☐ – ADAMS COUNTY .... (303) 288-1535

☐ – DENVER COUNTY .... (303) 331-4146

☐ DENVER CITY MAYOR .... (303) 575-2721

☐ COMMERCE CITY MAYOR .... (303) 289-3611

COLORADO DEPARTMENT OF HEALTH (CDH)–WATER QUALITY CONTROL DIVISION

☐ – DUTY HOURS .... (303) 331-4530

☐ – NONDUTY HOURS .... (303) 370-9395

COLORADO DEPARTMENT OF HEALTH (CDH)–HAZARDOUS MATERIALS & WASTE MANAGEMENT DIVISION

☐ – DUTY HOURS .... (303) 331-4830

☐ – NONDUTY HOURS .... (303) 377-6326

☐ ENVIRONMENTAL PROTECTION AGENCY (EPA)
DENVER EMERGENCY RESPONSE BRANCH .... (303) 298-1788

☐ LOCAL EMERGENCY PLANNING COMMITTEE .... (303) 289-5441

☐ STATE EMERGENCY RESPONSE COMMITTEE. .... (303) 377-6326

☐ NATIONAL RESPONSE CENTER (NRC). .... (800) 424-8802

☐ ARMY OPERATIONS CENTER (AOC). .... (202) 697-0218

☐ ARMY MATERIEL COMMAND/DEPARTMENT OF THE ARMY: (AMC/DA). .... DSN 284-9016

☐ U.S. ARMY TOXIC AND HAZARDOUS MATERIALS AGENCY (USATHAMA):......(301) 671-4714/2427

9302-11

B8.5.2 Incident Assessment Reports

The IOSC must submit a written report to CDH within 15 days of an incident that involves fire, explosion, or release of hazardous waste or hazardous waste constituents to the air, soil, or surface water. The EPA and the AMC will also receive a written report, if necessary.

If an incident involves the release of a Reportable Quantity (RQ) of a hazardous substance or extremely hazardous substance, the IOSC must send a written report to the following offsite entities:

- Local Emergency Planning Committee (LEPC)
- State Emergency Response Commission,
- National Response Center (NRC),
- U.S. Army Materiel Command/Department of the Army (AMC/DA), and
- U.S. Army Toxic and Hazardous Materials Agency (USATHAMA).

The IOSC must send written reports to AMC/DA and USATHAMA within 5 working days after verbal notification of the incident. Written reports to AMC/DA and USATHAMA should include release location, topographic maps, and flow diagrams.

If an incident involves the release of an RQ of oil, the IOSC must send a written incident report to the following offsite entities:

- CDH,
- AMC/DA, and
- USATHAMA.

CDH must receive a written report within 60 days of the incident. AMC/DA and USATHAMA must receive written reports concurrently, within 5 working days after verbal notification.

All incident reports to all appropriate entities must include the following information:

- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident;
- Name and quantity of material(s) involved;
- Extent of injuries, if any;
- Actions taken during the incident response;

- Assessment of actual or potential hazards to human health or the environment, when applicable, including:
  - any known or anticipated acute or chronic health risks associated with the release, and
  - advice regarding medical attention;
- Estimated quantity and disposition of recovered material that resulted from cleanup of the incident;
- Cause of the incident; and
- Description of corrective action taken to prevent recurrence of the incident.

SECTION B9

SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

B9.1 INTRODUCTION

Spill prevention, control, and countermeasure procedures, methods, and equipment have been developed and implemented for all Rocky Mountain Arsenal (RMA) facilities that meet the criteria outlined by federal regulations and Army Regulation (AR) 200-1. Generally, once a facility has been determined to require an Spill Prevention, Control, and Countermeasure (SPCC) Plan, all storage facilities and handling procedures for petroleum products and hazardous substances at the facility are addressed in the plan, at least to the extent of being identified in an inventory of substances at the facility.

Areas and facilities, such as small storage areas, shop facilities and laboratories, which do not meet the requirements for an SPCC Plan and which may not be located in an area which does require a plan, are addressed as a matter of good management practice, in an effort to identify and prevent harmful discharge of all Petroleum, Oils, and Lubricants (POL) and hazardous substances. This is in agreement with Army policy as stated in AR 200-1.

A description of RMA is presented in Section B1 of this Installation Spill Contingency Plan (ISCP), and locations requiring inclusion in this SPCC Plan are listed and discussed in Appendix A. Appendix A provides relevant site descriptions including location, maximum spill quantity, probable spill routes, secondary containment, and spill prevention and procedures. Location maps, drainage patterns, and fire hydrant locations are provided in Appendix J (Volume III). Additional supporting appendices include Appendix C, which discusses emergency response equipment; Appendix E, which provides a listing of reportable spill quantities; and Appendix G, which discusses safety precautions for known hazardous substances.

B9.2 SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN SCOPE

The SPCC Plan applies to petroleum products and hazardous substances (e.g., caustics, herbicides, and pesticides) stored or used at RMA. The following products are covered by the SPCC Plan:

- Gasoline,
- Diesel fuel,
- Road oil,
- Waste oil,
- Fuel oil,
- Sodium hydroxide (caustic),
- Herbicides and pesticides,
- Basin F liquid waste,
- Hydrazine wastewater, and
- Solvents and other organics.

The petroleum products listed above are stored at various locations at RMA (Logistics, North Plants, and South Plants Areas). These products are used as fuel sources for power plant boiler, heating, and vehicle operations.

Caustic, stored at the North Plants Area, was used in some demilitarization processes as a neutralizing agent and as a decontamination chemical in support of decontamination of facilities in the North Plants Area.

Herbicides and pesticides are mixed and stored in Building 742, located in the South Plants Area. These products are stored in small quantities and are generally used for vegetation and pest control at RMA.

Basin F liquid waste is stored in tanks 815, 816, and 817 and in Pond A. The Basin F liquid waste is the result of past Army and tenant operations.

Two aboveground storage tanks (ASTs) containing wastewater contaminated with trace amounts of hydrazine are located in the South Plants Area. Decontamination activities with super tropical bleach (STB) have resulted in the generation of 250,000 gallons of this wastewater.

Supply Building 616 is located in the Logistics Area. Chemicals used at RMA are received and stored in this building.

B9.3 REQUIREMENTS FOR A SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

The basic federal, Army, and state regulations relating to spill prevention are summarized in the following paragraphs.

B9.3.1 Federal Regulations

Title 40 CFR, Part 112. This regulation requires that an SPCC Plan be written for any nontransportation-related facility that could reasonably be expected to

discharge oil of any kind into navigable waters of the United States (U.S.) as a result of geographical location, or meets one or more of the following requirements:

- The total aboveground oil storage capacity at the facility is greater than 1,320 gallons.
- A single aboveground storage tank larger than 660 gallons is used.
- The total underground oil storage capacity is greater than 42,000 gallons.
- Hazardous substances stored in quantities that would present a threat to human health if discharged to the environment.

Hazardous and Solid Waste Amendments of 1984. The Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments (HSWA) (Public Law (PL) 98-616), addresses the underground storage of new products as well as used/waste products.

Used/Waste Oil Regulations. HSWA assigned the Administrator of the U.S. Environmental Protection Agency (EPA) the task of determining whether used oil should be designated as a hazardous waste. EPA has since declared that used oil is not a hazardous waste. EPA has proposed new rules for the handling and storage of recycled oil which will generally apply to used oil. Although EPA did not determine used oil to be a hazardous waste, individual states, which have been delegated the authority to regulate hazardous waste, can promulgate their own standards for used oil in the future. Storage and handling practices are regulated by the more stringent requirements, whether federal or state.

B9.3.2 U.S. Department of the Army Regulations

AR 200-1. AR 200-1 implements and augments the requirements of the federal laws and lists the minimum requirements for Army SPCC Plans. Whereas the Code of Federal Regulations (CFR) (40 CFR 112) requires an SPCC Plan only if there is potential for contamination of navigable (surface) waters, AR-200-1 also requires an SPCC Plan for potential spills contaminating air, land, and ground water.

In addition to the 40 CFR 112 oil storage quantities which require an SPCC Plan, AR 200-1 requires a plan if one or more hazardous substances, as defined under the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA), are stored at the installation in amounts greater than the listed Reportable Quantity (RQ), and/or if the release of stored hazardous substances in any quantity would present a threat to human health or the environment. AR 200-1 states that the guidelines in 40 CFR 112.7(e) regarding oil spills also apply to hazardous materials at Army installations.

Specific guidelines for the minimum requirements for the preparation of an SPCC Plan are contained in paragraph 8-7, AR 200-1, and are summarized below:

- An inventory listing of storage, handling, and transfer facilities for which a reasonable possibility exists for the discharge of oil or hazardous substances in

harmful quantities should be included. Descriptions of these facilities should also be provided addressing the potential for spillage or leakage, including the rate and direction of flow from each spill site.

- A detailed description of the existing spill prevention equipment and proposed countermeasures for the containment of spills should be included. The proposed measures should allow for the recovery of the spilled material wherever possible.
- Identification of structural or procedural deficiencies at each site, accompanied with the required corrective action or recommendation should be included.
- In situations where structural changes to prevent spills are fully demonstrated not to be practicable by the installation commander, compensation can be made through written provisions of the ISCP in this section of the SPCC Plan.
- Written procedures for the operation of equipment to prevent harmful discharges to the environment, as well as inspection and recordkeeping requirements should be included.

B9.3.3 State Regulations

Colorado Revised Statutes (CRS) 1973 [CRS (1973) 25-8-601]. This statute in part requires that the Water Quality Control Division, Colorado Department of Health (CDH), be notified of the spillage of any material which may cause pollution of surface water or ground water of the state. This notification must be made by telephone as soon as possible after the spill occurs. Failure to notify or delayed notification is punishable by fine and/or imprisonment for up to one year. In addition to reporting the spill, the responsible party should take immediate corrective action to contain and/or remove the spilled substance.

B9.4 INSTALLATION RESPONSE TEAM PERSONNEL

The Installation On-Scene Coordinator (IOSC) is responsible for coordinating the activities of the Installation Response Team (IRT) in the containment, control, and cleanup of accidental releases. Additional information on the IRT is located in Sections B4 and B5 of this ISCP.

B9.5 FACILITIES WHERE PETROLEUM, OILS, LUBRICANTS, AND HAZARDOUS SUBSTANCES MAY BE USED AND STORED

National Fire Protection Association (NFPA) 704 standard system for the identification of fire hazards of materials should be posted where appropriate.

B9.5.1 Storage Rooms

Storage rooms of various sizes are used to store a multitude of products. They may be inside another building, or stand alone. The stand-alone storage rooms are frequently conex-type structures. An inventory of what is stored in the rooms should

be completed and updated as necessary to ensure that the stored products are compatible. A determination should be made as to the capability of the storage room to provide secondary containment for the stored materials. The volumes of the largest containers, presence or absence of floor drains, vents near the floor, expansion joints, holes in the floor, slope of the floor, etc., are points which should be considered in the evaluation. A storage room will frequently provide sufficient secondary containment. In some cases, a small lip can be installed in front of the door(s) to increase the containment volume provided by the room. Small sheds and/or conex-type storage rooms can be placed on curbed pads or can have several inches of sorbent material placed beneath the flooring. The sorbent material should be installed in a way that will allow its periodic removal and replacement.

The primary potential for spillage in these areas is through handling and dispensing the products stored. In all cases, care in handling and good housekeeping practices should be emphasized. All spillage should be cleaned up by the spiller and/or reported to the person in charge. The name and phone number of the person to notify and, for areas in which large quantities of regulated substances are stored, a copy of the appropriate spill response procedures should be conspicuously posted. All personnel likely to use the storage room should be trained in proper handling, containment, cleanup, and report procedures.

B9.5.2 Outdoor New-Product Storage

Outdoor facilities in which fresh product is stored are generally fenced areas which may contain as few as one or two, or as many as a hundred or more, 55-gallon drums of various products. The drums may be on a track of some sort or may stand on the ground or on pallets, and may be stored vertically or horizontally. The drums may or may not have dispensing lips or manual pumps and may or may not be in use. Other types of containers may also be present.

Ideally, the foundation of this type of facility will be a curbed concrete pad. In areas of substantial precipitation, a cover will also ideally be present. Consideration should be given to sand bagging or berming the area, if practical. Covers (such as awnings or roofs) should be considered if they would be of benefit in wet or snowy climates.

Containment may be impractical or unnecessary, depending on the drainage pattern from the area. The area should not drain directly into a stream or into a storm drain which discharges into a stream. Drip pans should be placed beneath all dispensing taps which are used to fill other containers. Sorbent materials should be available to clean up any spill or leakage. Immediately upon their discovery, leakage points should be repaired or replaced, or leaking containers should be placed in overpack containers.

Contaminated soil should be cleaned up and disposed of in accordance with applicable regulations.

All containers should have legible labels on them identifying the contents. The containers should be oriented so the labels may be read without having to move the containers. Only compatible materials should be stored together. Storage areas should be inspected daily and a log maintained, and any problems should be reported to the area supervisor.

B9.5.3 Outdoor Waste-Product Storage Areas

Waste-oil products may be stored in 55-gallon drums in designated storage areas. Waste oil may inadvertently be mixed with solvents, waste antifreeze, and other waste substances. If hazardous wastes are stored in the same area as waste oil, the storage area should comply with the RCRA requirements.

Waste materials or different types of materials should not be mixed in the same container. If one of the products is a hazardous waste, the mixture generally becomes a hazardous waste. This is true of empty or near-empty hazardous waste containers into which rain water enters. The entire contents should be treated as the waste product, and should be handled and disposed of in the same manner. Because treatment, handling, and disposal are expensive, empty drums should be kept tightly closed.

If emptied, new-product drums are used to store waste products, the original labels should be obliterated and the type of waste to be held should be stenciled on the drums. Waste material should be carefully poured into the storage containers to avoid contaminating the exterior of the container and the surrounding ground. Spilled material should be cleaned up immediately and disposed of properly. The quantities of waste material in the containers should be monitored frequently enough to ensure that they are not overfilled. Plugs should be kept in drum openings, or covers should be placed over the containers to exclude rain water. Sorbent materials should be readily available for containing and cleaning up spillage. The storage area should be diked, bermed, and/or covered, as necessary, to prevent spilled material from draining into natural or manmade drainage systems (unless they are designed to handle spillage) and to provide cover from rain and snow, as necessary.

B9.5.4 Battery Shops

Lead-acid battery storage shops are areas in which drain batteries are drained and recharged with sulfuric acid (electrolyte). This activity requires on-hand storage of new electrolyte and a method for disposal of old electrolyte. Usually a water source, sink, sink drain, and floor drain are present. Water may drain to the sanitary sewer or, in some cases, a storm sewer. It is important to determine where any drains in the battery shop lead.

Maintenance personnel can sometimes neutralize the spent electrolyte on site and pour it down the drain. However, analyses of spent electrolyte frequently reveal that its lead and cadmium contents are sufficient to render it a hazardous waste. Therefore, the acid should be treated only in a facility permitted under RCRA.

Dilution of the electrolyte to lower the metals concentrations below the hazardous limits is forbidden by law. This has resulted in the now-common practice of collecting spent electrolyte, pouring it back into the original containers, and turning it in to a Defense Reutilization and marketing Office (DRMO). Another practice is to return the batteries to a DRMO without draining them. In either case, state and local agencies should be contacted to determine the requirements for transporting the acid and/or the batteries.

If spilled, new acid electrolyte may be neutralized, tested with litmus paper or some other pH-indicator, and discharged to the sanitary sewer. Although the new acid is hazardous due to its corrosive nature, federal law specifically exempts treatment by elementary neutralization from the permitting requirements. The acid should be contained and neutralized prior to discharging. Thus, the floor and sink drains should be stopped (plugged or covered) during transfer and handling of acid. Storage areas for new acid should have no drains. Care should be taken in selecting the containers in which spent acid is stored to ensure that the containers are approved for such use.

B9.5.5 Mobile Storage Units

Mobile storage units include tank trucks and trailers used to transport products for delivery to aircraft, other vehicles, storage tanks, or individual containers. Mobile units which travel on public highways are exempted from SPCC Plan requirements and are covered by U.S. Department of Transportation (DOT) requirements. Nonetheless, it is prudent to identify these mobile storage units in the spill plans and to take such measures as seem reasonable to prevent accidental discharges and to prepare for mitigation of accidental spills which may occur.

When parked, mobile storage units should be located in an area that does not drain directly into storm or natural drainage systems. Ideally, some sort of secondary containment should be considered when selecting parking areas. Suitable areas may include a natural or manmade depression, a wash pad with the drain temporarily sealed, or some other existing situation which would cause spilled material to be contained.

Sorbent materials, shovels, and brooms carried on mobile storage units aid in quick cleanup of accidental spills that may occur during dispensing procedures. The driver should be required to remain with the vehicle and be attentive during filling. The driver should also be aware of spill prevention and response procedures.

B9.5.6 Fuel Points

Fuel points can involve at least four separate operations: storage, receiving, dispensing, and bulk fueling. Fuel storage has been addressed above; the other fuel-related activities are addressed below. Sorbent material should be readily available for all fueling operation areas, and signs should be posted with instructions for spill response, along with the names and numbers of emergency notification personnel. Intrabasically safe lighting should be installed in all fuel point areas.

Receiving. The most common spills during receiving occur from overfilling the storage tanks. Other potential spill sources include tank truck rupture, dislodging or breaking fuel delivery lines, valve failure, deliberate discharge, and leakage or rupture of the receiving storage tank. Two people should be present and attentive during receiving operations. Ideally, receiving personnel should be present during receiving operations in addition to the delivery personnel. The receiving tank should be gauged before and after delivery, as a matter of inventory control.

Dispensing. Dispensing is the delivery of fuel to the gas tanks of vehicles or equipment, or to other containers. It is usually accomplished by an electric pump which delivers 10 to 25 gallons per minute (gpm). The pump discharges through a wire-reinforced synthetic rubber hose, with a compound level-type nozzle. The nozzle usually has an automatic shutoff mechanism. If it has a lock-on, latch-open device which permits unattended operation, this feature should be disabled so the lever should be manually held open. The pump should be padlocked whenever it is not in use or under the direct supervision of a responsible person. The electrical pump switches should be located inside a securable building, or be securable themselves.

Secondary containment is not required for simple service station fuel points; however, prudence should be exercised as to the location of storm drains or other paths which could deliver spilled fuel to a waterway in the immediate area. Most of the spills that occur during dispensing will be small; however, the cumulative effects of frequent small spills can be significant. Although the spills may be absorbed by the top few inches of soil, or may spread and evaporate on concrete or asphalt surfaces, much of the deposited material can be lifted and carried to drainage during the first heavy rain that follows. For this reason, continued emphasis on daily inspections and responsible operations is necessary.

Bulk Fuel Loading/Unloading Points. Bulk fuel loading/unloading points generally have larger pump hoses than service stations dispensing points. Pumping rates may range from 50 gpm to as high as 350 gpm. The potential for a harmful discharge is proportionately greater. Spills occur at bulk fuel loading/unloading points from overfilling, dislodged couplings, pre-disconnect departure of the vehicle, and carelessness.

The delivery truck driver and the fuel point operator should always be present during bulk filling. Some method, such as signs, barriers, and having the fuel point operator hold the truck keys, should be employed to prevent the receiving truck from departing before disconnecting the fuel line. The pumps and electrical switches should be locked to prevent unauthorized use. All delivery systems should be manual rather than having devices which permit unattended operation.

Where rack area drainage does not flow into a catchment basin or treatment facility designed to handle spills, a containment system should be incorporated into tank truck loading and unloading areas. The containment system should be designed to hold at least the maximum capacity of any single compartment of any

tank truck to be loaded or unloaded at the facility. Prior to and after loading, all drains and outlets in the tank should be checked for leakage. This should be part of the fuel point Standing Operating Procedure (SOP).

B9.6 PESTICIDES

Pesticides are hazardous substances. The degree of hazard a pesticide presents varies with the type of pesticide, its chemical substance, its form (whether liquid, solid, or powder), and the properties of the carrier (e.g., if it is dissolved or in a liquid suspension for application). Pesticide handling and storage are normally included in installation pest management programs and hazardous waste management programs.

B9.6.1 Regulatory Information

Pesticide operations are regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 40 CFR 165, AR 40-5, AR 200-1, AR 420-74, and AR 720-76. Guidance in the area of preventing and handling pesticide spills is available in the Armed Forces Pest Management Board Technical Information Memorandum (TIM) No. 15, "Pesticide Spill Prevention and Management."

B9.6.2 Pesticide Storage

Pesticides should be stored in single-use rooms, and the storage site should be securable (locked/fenced). Storage rooms should be fire resistive. Pesticides should not be stored on pallets or shelves made of wood or other porous materials, and containers should be stored with labels plainly visible. The containers should be stored above the ground or floor to allow easy access, and they should be inspected at least monthly to ensure that lids are tight and that they are not leaking. Incompatible pesticides should be separated to avoid cross-contamination and/or adverse reactions.

The storage room should not have floor drains, unless they drain to a collection sump; the storage area, particularly for liquid materials, should be segregated by an impervious dike to contain any leakage or spillage. If a deluge shower and/or eye lavage are present, provisions should be made to collect the contaminated runoff from their operation. The runoff should be disposed of as excess pesticide. The storage room should be well ventilated (six room-air changes per hour), and the temperature should be maintained between 40 and 100 degrees Fahrenheit. Emergency procedures should be conspicuously posted near work sites and exits.

B9.7 UPDATED SPILL HISTORY

There have been no reportable spills at RMA during the 12-month period prior to the date of this SPCC Plan. If a spill occurs, a description of the spill as detailed in Section B8.5 of this ISCP, together with the notification and cleanup actions taken for any reportable spills will be appended to this plan.

B9.8 PREVENTION OF SPILLS

General mechanisms of spill prevention that should be practiced at RMA are briefly discussed below. The spill prevention mechanisms associated with facilities having a potential for a "reportable spill" are provided in the Site-Specific Action Plans (Appendix A).

B9.8.1 Secondary Containment

One of the following containment and/or diversionary structures should be used, at a minimum, in each potentially-affected area:

- Dikes, berms, or retaining walls sufficiently impervious to contain spilled oil;
- Curbing;
- Culverts, gutters, or closed drainage systems;
- Weirs, booms, or other barriers;
- Spill-diversion ponds or ditches; and/or
- Sorbent materials.

Dikes, curbs, and pits are commonly employed for secondary containment purposes, but may not always be appropriate. An alternative system could consist of a complete drainage trench enclosure arranged so that a spill could terminate and be safely confined in a catchment basin or holding pond. Drainage from diked storage areas should be restrained by valves or other means to prevent a spill or excessive leakage of oil from reading the drainage system or onsite effluent treatment system, except where systems are designed to handle such leakage. Diked areas may be emptied by manually-operated pumps or ejectors. The condition of the accumulated fluid should be analyzed prior to removal to be sure that no oil or hazardous substance will be discharged into the water system. Valves used for the drainage of diked areas should be of manual, open -or- closed design. Flapper-type drain valves should not be used to drain diked areas because they tend to clog. Drainage from undiked areas should, if possible, flow into ponds, ditches or catchment basins designed to retain oil or hazardous substances, or should return it to the tank.

B9.8.2 Inspection and Preventative Maintenance

The following inspection schedules and maintenance for Program Manager Rocky Mountain Arsenal (PMRMA) equipment should be used.

- Inspect bulk storage tanks monthly for seepage at butt-weld plate seams, riveted or bolted joints, and drain valves. Seepage may be detected by wet spots and paint discoloration. Correct seepage at the butt or lapped seams immediately.
- Inspect contact points for cathodic protection from corrosion on steel tanks annually to insure that they properly dissipate electrical charges.

- Calibrate pump meters semiannually and adjust or replace as necessary. Calibration and testing should be conducted in accordance with state requirements.
- Analyze accumulated water within any containment system prior to its removal.
- Perform monthly preventive maintenance inspections of service station pumps, hoses, loading arms, tanks (for leaks around valves, seams, gaskets, rivets, etc.), and containment systems.
- Clean bulk storage tanks. Internal and external corrosion should be assessed and the general condition of the tank evaluated.
- Inspect pipes, valves, and fittings monthly for leakage, split joints, accidental punctures, cracked welds, and internal and exterior corrosion. Leakage may be detected by pressure checks, foot and air patrol, and metering the throughput of the product at various locations along the pipeline.
- Regularly inspect underground tanks to determine the need for cleaning. The inspection should include obtaining a bottom sample. If the sample indicates an appreciable accumulation of unpumpable sludge or sediment, the interior should be cleaned and inspected. Underground tanks should be subjected to regular pressure testing to check for leakage which may occur at the seams, rivets, and valves.
- Inspect fill and vent pipes of storage tanks for corrosion and pitting on a regular basis. New tanks should be protected from corrosion by coatings, cathodic protection, or other effective methods compatible with the soil conditions. Inspection of the containment or diversionary system should be performed regularly to check for deterioration or leakage within the system. A complete record of the inspections should be established for each tank.
- Inspect hoses, valves, connections, and pumps for leakage and/or damage. If deficiencies are noted, take appropriate action to correct the deficiency to prevent any liquid leakage.
- Inspect equipment, safety devices, and working areas to insure personal and operational safety and to correct potential or actual hazards.
- As a rule, oil-water separators should be inspected at least weekly. A longitudinal cross-sectional drawing of each separator should be available, and all personnel working in an area with a separator should understand how it functions. The depths of sediment and amounts of floating material which will trigger cleaning procedures should be established. The weekly inspection should include measuring these depths and amounts. Records of the inspections should be kept to ensure that captured oil or sediment is not passed through the separator.

B9.8.3 Operating Procedures

Operating procedures that should be used for spill prevention are summarized below.

- Tanker loading/unloading operations should take precedence over all other tasks and activities in the immediate area.
- Notify the Fire Prevention and Protection Branch (FPPB) when flammable or hazardous substances are being loaded/unloaded.
- Provide an interlocked warning light, physical barrier system, or warning signs in the loading/unloading areas to prevent vehicular departure before complete disconnect of flexible or fixed transfer lines. The operator is in attendance at all times during the loading/unloading.
- Establish and enforce rules prohibiting smoking. Adequate "No Smoking Within 50 Feet" signs are prominently displayed.
- Fire extinguishers and other fire fighting equipment should be accessible and operable at the tanks.
- Prohibit the operation of open flames, heating stoves, and other flame- or spark-producing or -generating equipment in the immediate vicinity of any POL supply area.
- Nozzles with notched handles, which allow for unattended transfer, should not used for transferring fuels. Nozzles should be tended constantly during transferring operations and are equipped with automatic shutoffs.
- Place drainage tubs and other suitable containers under all hose connections, faucets, and similar locations to collect potential leakage.
- Provide adequate ventilation in working and storage areas.
- Provide flame and spark arrestors for equipment within or adjacent to the storage areas.

B9.8.4 Housekeeping

Good housekeeping practices are summarized below:

- While maintaining an adequate supply, quantities of stored products should be as small as possible. This reduces the magnitude of a potential spill.
- There should ideally be no floor drains, unless they drain to a holding tank. Most shop drains flow to the sanitary or storm sewers. Some have an in-line oil-water separator; some do not. Floor drains which do not drain to a holding tank should be covered quickly if a spill occurs. A rubber mat located near the drain or normally covering the drain works well for this purpose. Drain covers also are useful for drains which flow to oil-water separators, as many solvents will not be trapped in the separator and/or the holding capacity of a separator may be exceeded by a large spill.

- Wherever practical, signs identifying segregated materials storage should be posted.
- Liquid products should be stored away from floor drains and expansion joints. Where this is not feasible, consideration should be given to providing secondary containment, such as cans or containment boxes in which the materials may be stored.
- Where products are dispensed through taps, spigots, or bungs in horizontal drums stored on racks, drip pans should be employed to catch the spillage that will occur during filling of containers. Funnels should be used when filling small-mouthed containers.
- Whether in the shop or in a storage room, products should be well organized. Only compatible substances should be stored together. Containers should be placed so the labeling, including warnings, may be read without moving the containers. Routes of egress should not be blocked.

B9.8.5 Material Compatibility

Material compatibility refers to the compatibility of oil and hazardous substances with the materials of construction of containers that store or transport them; compatibility of storage or transfer devices with their environment; and compatibility of different substances upon mixing. A hazardous substance compatibility chart is provided in Table II-B.4.

B9.8.6 Security

Security involves the deterrence of unauthorized, unknowing, or accidental entry of personnel, animals, or vehicles into potential spill areas when such entry could result in the damage or misuse of equipment containing or conveying POL or hazardous substances.

As described in Section B1 of this ISCP, RMA is surrounded by a 8-foot-high chain-link fence. Signs stating "U.S. PROPERTY, NO TRESPASSING," are posted every 500 feet along the fence. Additional signs stating "U.S. ARMY MILITARY RESERVATION, NO TRESPASSING," are posted about every 2,000 feet around the perimeter, about 50 yards inside the fence.

Entry at the two main entrances, the West Gate and the South Gate, is controlled by guard stations. The West Gate is open 24 hours a day and the South Gate is open as operations require. Both gates are manned by guards at all times when open. Personnel without pre-approved authority should enter through the West Gate. Entrance procedures for personnel without authorized clearance require sign-in before temporary passes are granted. About 20 other gates are present around the perimeter. These gates are kept locked and used only for emergencies.

TABLE

COMPATIB

REACTIVITY GROUPING	REACTIVITY GROUP NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Acids, Mineral, Non-oxidizing	1																	
2	Acids, Mineral, Oxidizing		2																
3	Acids, Organic		G H	3															
4	Alcohols and Glycols	H	H F	H P	4														
5	Aldehydes	H P	H F	H P		5													
6	Amides	H	H GT				6												
7	Amines, Aliphatic and Aromatic	H	H GT	H		H		7											
8	Azo Compounds, Diazo compounds, and hydrazines	H G	H GT	H G	H G	H			8										
9	Carbamates	H G	H GT						G H	9									
10	Caustics	H	H	H		H				H G	10								
11	Cyanides	GT GF	GT GF	GT GF					G			11							
12	Dithiocarbamates	GF H F	GF H F	GF H GT		GF GT		U	H G				12						
13	Esters	H	H F						H G		H			13					
14	Ethers	H	H F												14				
15	Fluorides, Inorganic	GT	GT	GT												15			
16	Hydrocarbons, Aromatic		H F														16		
17	Halogenated Organics	GT H	GT H F					GT H	H G		GF H	H						17	
18	Isocyanates	H G	GT H F	H G	H P			H P	H G		P H G	H G	U						1
19	Ketones	H	H F						H G		H	H							
20	Mercaptans and Other Organic Sulfides	GT GF	GT H F						H G									H	
21	Metals, Alkali and Alkaline Earth, Elemental	GF H F	GF H F	GF H F	GF H F	GF H F	GF H	GF H	GF H	GF H	GF H	GF H	GF H GT	GF H				H E	G
22	Metals, Other Elemental and Alloys as Powders, Vapors, or Sponges	GF H F	GF H F	GF					GT H F	U	GF H							H E	G
23	Metals, Other Elemental and Alloys as Sheets, Rods, Drops, Moldings, etc.	GF H F	GF H F						G H F									H F	
24	Metals and Metal Compounds, Toxic	S	S	S			S	S			S								
25	Nitrides	GF H F	E H F	GF H	GF H E	GF H			U	H G	U	GF H	GF H	GF H				GF H	
26	Nitriles	GT H·GF	GT H F	H							U								
27	Nitro Compounds, Organic		GT H F			H					H E								
28	Hydrocarbons, Aliphatic, Unsaturated	H	H F			H													
29	Hydrocarbons, Aliphatic, Saturated		H F																
30	Peroxides and Hydroperoxides, Organic	H G	H E		H P	H G		GT H	E H F	GT H E		GT H E	GT H F					H E	
31	Phenols and Cresols	H	H F						H G										H
32	Organophosphates, Phosphothioates, Phosphodithioates	GT H	GT H						U		H E								
33	Sulfides, Inorganic	GT GF	GT H F	GT		H			E										
34	Epoxides	H P	H P	H P	H P	U		H P	H P		H P	H P	U						
101	Combustible and Flammable Materials, Miscellaneous	H G	GT H F																
102	Explosives	H E	H E	H E					H E		H E			H E					
103	Polymerizable Compounds	P H	P H	P H					P H		P H	P H	U						
104	Oxidizing Agents, Strong	GT H		GT H	H F	H F	GT H F	GT H F	H E	GT H F		GT H E	GT H F	H F	H F		H F	GT H	G H
105	Reducing Agents, Strong	GF H	GT H F	GF H	GF H F	GF H F	GF H	H GF	H G				GT H	H F				H E	GF
106	Water and Mixtures Containing Water	H	H						G										H
107	Water Reacting Substances	← EXTREMELY REACTIVE! DO NOT MIX WIT																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	1

TABLE II-B.4

ATIBILITY CHART

DRAFT FINAL
CP, RMA, CO
21 DECEMBER 1990

H	Heat Generation
F	Fire
G	Innocuous and non-flammable gas generation
GT	Toxic gas generation
GF	Flammable gas generation
E	Explosives
P	Violent polymerization
S	Solubilization of toxic substances
U	May be hazardous, but unknown

Example: GT H F — Heat generation, fire, and toxic gas generation

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	101	102	103	104	105	106	107
16	16																									
17		17																								
18			18																							
19				19																						
20		H	H	H	20																					
21		H E	GF H	GF H	GF H	21																				
22		H E	GF H		GF H F		22																			
23		H F						23																		
24									24																	
25		GF H	U	GF H	GF H	E				25																
26						H P			S	GF H	26															
27						GF H E				GF H E		27														
28							H E						28													
29														29												
30		H E	H	E	GT H F	H E	P G		H G	GF H E	GT H P		H P		30											
31			H P			GF H				GF H					H	31										
32						H									U		32									
33			H												GT H			33								
34					H P	H P	H P		H P	H P					H P	H P	U	H P	34							
101						G H F				GF H F					GT H F					101						
102						H E	H E	H E	E	E					H E	H E		H E	H E	H E	102					
103						P H	P H	P H	P H	P H					P H	P H		P H			H E	103				
104	H F	GT H	GT H F	H F	GT H F	E H F	E H F	H F		E H F	GT H F	H E	H F	H F	H G	H F	GT H F	GT H F	G H F	G H F	H E	GT H F	104			
105		H E	GF H	GF H	GF H						GF H	H E			H E	GF H	GF H GT		H	GF H	H E	GF H P	H F P	105		
106			H G			GF H	GF H		S	GF H								GT GF						GF GT	106	
107	NOT MIX WITH ANY CHEMICAL OR WASTE MATERIAL! EXTREMELY REACTIVE!																									107

28711-036

Guards also patrol the entire perimeter at least once during each 8-hour shift. Security at specific sites is discussed in Appendix A.

B9.9 RECORDKEEPING

The records which should be maintained onsite include a copy of the SPCC Plan, maintenance records, training records, incident reports, inspection records, inventory records, and construction records. Continuity and completeness of the records are necessary not only for documentation and planning purposes, but also for detecting, preventing, or responding to unexpected events. All records should be signed and completed as required.

Maintenance records should include a written preventative maintenance plan for each piece of equipment or process, maintenance history, and calendar of preventative maintenance required. The compilation of this data is used in scheduling equipment replacement and for comparison purposes as a baseline when unusual operation occurs.

Training records should be maintained on all personnel. Past training history will serve to indicate the areas for future training or updates to maintain currency. Further, these records will be used in identifying the appropriate personnel to respond to a situation.

Incident reports filed with required regulatory agencies should also become a part of the facility records. Included with the file of a particular incident should be a description of the circumstance, steps taken to remedy the situation, and plans to prevent future similar incidents.

Any inspection report, whether routine or not, should be on file and signed by all appropriate personnel. Inspection records are necessary not only to document that required activities are occurring, but also as part of the overall facility baseline data.

Construction records are required to indicate the location of underground or concealed equipment and facilities. These records are used to avoid concealed objects during future construction, emergency response, and determination of the extent of a structure or underground network for destruction, disposal, and maintenance purposes.

All records should be maintained at a common but controlled location. Removal, and location of removed documents, should be noted at the central records location.

B9.10 TRAINING

Personnel who work with POL or hazardous substances will be familiar with and will understand the contents and requirements of the SPCC Plan. For more specific details on training, refer to Appendix F.

B9.11 CONSOLIDATED LIST OF SITE-SPECIFIC RECOMMENDATIONS

The following is a compilation/summary of actions which are recommended to improve the ability of PMRMA to prevent, control, and respond to potential spills of POL or hazardous substances. They are listed here to provide a better overall understanding of the preparedness of the installation and to facilitate scheduling of corrective actions.

1. Tank 632 - None
2. Motorpool
   - Fuel Station, Building 629 - Provide containment or diversionary structures at the loading/unloading area. Provide high-level alarms for the underground storage tanks (USTs).
   - Maintenance Shop, Building 627 - Remove accumulated waste oil from Building 627 on a more frequent basis to lessen the possibility of spilling the material.
3. Building 618. - None
4. Buildings 621, 624, and 633B - None
5. Tank Farm, Tanks 629A, 629B, 629C, 629D, and 628A - Provide a secondary containment berm impervious to diesel fuel around Tank 629C.
6. Tank 1510
   - Construct a containment or diversionary structure at the loading/unloading area.
   - Provide an impervious bermed containment area which is adequate to contain a maximum spill from the tank.
   - Provide a manual discharge (feed valve) for Tank 1510.
7. Tank Farm 1501
   - Provide impervious containment berms which are adequate to contain the capacity of the largest tank in each berm.
   - Provide containment or diversionary structures at the loading/unloading area.
   - Provide fail-safe engineering devices such as high-level alarms, automatic shutoff devices, or gauges in the tanks.
8. Building 1611 Day Tanks (North and South)
   - Provide additional diversionary or containment structures to prevent a spill from entering First Creek.

9. Tank Farm 321, Tanks 321A, 321B, and 321E
    - Line the containment berms with impervious material.
    - For Tank 321E, provide additional secondary containment adequate to contain the capacity of the tank.
    - Provide containment or diversionary structures at the loading/unloading area.
10. Fueling Station at Tank Farm 321 - Perform regular inspections of the fuel point and the surrounding areas.
11. Building 321, Heating Plant - None
12. Buildings 331 and 332 - None
13. Buildings 368 and 372 A - None
14. Building 543 - None
15. Building 742 - None
16. Basin F Storage Facility, Tanks 815, 816, and 817 - None

B9.12 SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN CERTIFICATION

__________________________, a Professional Engineer registered in the State of Colorado, certifies that the Oil and Hazardous Substance Spill Prevention, Control, and Countermeasure Plan and supporting information has been prepared in accordance with good engineering practices and in accordance with the U.S. Environmental Protection Agency regulations (Title 40 of the Code of Federal Regulations, Part 112) on oil pollution prevention.

_________________________________ Professional Engineer   Date: __________

Colorado Registry No. ________________

B9.13 SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN CERTIFICATION OF AMENDMENTS

I hereby certify that I have amended the plan described herein, and, being familiar with the provisions of Title 40 of the Code of Federal Regulations, Part 112, and Army Regulation 200-1, attest that this Spill Prevention, Control, and Countermeasure Plan for Rocky Mountain Arsenal, Commerce City, Colorado, has been prepared in accordance with good engineering practice.

____
Signature of Certifying P.E.

Change Number	Date	Description	Signature of Certifying Professional Engineer

B9.14 SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN MANAGEMENT APPROVAL

This Spill Prevention, Control, and Countermeasure Plan will be implemented as described herein.

Date: ____________________

____
Daniel R. Voss
COL, MS
Program Manager

APPENDIX A

SITE-SPECIFIC ACTION PLANS

DESIGNATION OF POTENTIAL SPILL SITES

The following are the specific locations and the type of facilities that are present at RMA for which the SPCC Plan was developed:

Logistics Area

1. Tank 632 - One 40,000-gallon fuel oil UST.
2. Building 627, Motor Pool Maintenance Shop.
3. Building 629, Motor Pool Fuel Station - one 9,000-gallon diesel fuel UST and two 12,000-gallon Mogas USTs.
4. Tank Farm, Tanks 629A-629D and Tank 628A - five 10,000-gallon diesel fuel ASTs.
5. Building 618, Supply Division Warehouse.
6. Buildings 621, 624, and 633B - DRMO Storage.
7. Building 616, Supply.

North Plants Area

1. Tank 1510 - one 200,000-gallon fuel oil AST.
2. Tank Farm 1505 - ten 18,000-gallon sodium hydroxide (caustic) ASTs.
3. Day Tank South of Building 1611 - one 4,500-gallon fuel oil AST.
4. Day Tank North of Building 1611 - one 1,500-gallon fuel oil AST.
5. Building 1727, Sump.
6. Building 1713, Treatment Operations.

South Plants Area

1. Tank Farm, Tanks 321A, 321B, and 321E.
   (1) Tank 321A 72,000-gallon fuel oil AST.
   (2) Tank 321B 64,000-gallon fuel oil AST.

(3) Tank 321E 416,000-gallon fuel oil AST.

2. Fueling Station - two 300-gallon Mogas ASTs.
3. Building 742, Pesticide/Herbicide Storage.
4. Heating Plant.
   (1) Building 321.
   (2) 12,000-gallon UST containing water and dicyclopentadiene (DCPD).
   (3) Hazardous materials storage area.
   (4) AST containing oil contaminated with DCPD.
5. Buildings 331 and 332, PCB Transformer Storage, General Purpose Warehouse.
6. Buildings 368 and 372A, Gaseous Chlorine Storage.
7. Building 543, Maintenance Shop.
8. Tanks 463D and 805, Hydrazine Blending and Storage Facility.
9. Building 313, Laboratory.
10. Building 741, Laboratory.
11. Building 743, Laboratory.
12. Building 451, Shell Hazardous Waste Storage Warehouse.
13. South Plants Liquid Waste Treatment Facility.
14. Building 883, Warehouse.
15. South Plants Decontamination Area.
16. Hydrazine Wastewater Treatment Facility.
17. South Plants Decontamination Pad.

Basin F Area

1. Tanks 815, 816, and 817 - three 1,333,000-gallon ASTs containing Basin F liquid waste.
2. Pond A - 8.5-million-gallon capacity pond containing approximately 5.5-million gallons of liquid waste removed from Basin F during the Interim Response Action.
3. Waste Pile - 605,000-cubic yard capacity pile containing 488,000 cubic yards of sludges removed from the bottom of Basin F.

Old Toxic Storage Yard

1. Plots 1 and 28.

Central Waste-Handling Facility

1. Building 785, Hazardous Waste Containerization and Storage Area.
2. Building 786, Hazardous Waste Containerization and Storage Area.
3. Building 787, Hazardous Waste Containerization and Storage Area.
4. Building 788, Hazardous Waste Containerization and Storage Area.
5. Building 791, Hazardous Waste Containerization and Storage Area.
6. Building 794, Hazardous Waste Containerization and Storage Area.
7. Building 796, Hazardous Waste Containerization and Storage Area.
8. Building 797, Hazardous Waste Containerization and Storage Area.
9. Building 798, Hazardous Waste Containerization and Storage Area.

Boundary Systems

1. North Boundary Containment and Treatment Facility.
2. Northwest Boundary Containment and Treatment Facility.

Sewage Treatment Plant

1. Building 391 and Associated Structures.

Hazardous Waste Storage Bunkers

1. Building 1608.

Basin A Neck Ground Water Intercept and Treatment System

1. Basin A Neck Treatment System.

Irondale Ground Water Treatment Facility

[Information Under Development]

LOGISTICS AREA

A. GENERAL DESCRIPTION

The Logistics Area is located in the southwest portion of RMA and is shown on the General Site Map in Appendix J (Plate III-B-J.2). The locations of potential spill sites are shown in greater detail on the logistics area map (Plate III-B-J.4). Potential spill sites in this area include: Tank 632; the Motor Pool Maintenance Shop (Building 627); Motor Pool Fuel Station, Building 629; the Tank Farm 629 A-D, 628A; the Building Supply Division Warehouse; Defense Reutilization and Marketing Office (DRMO) (Buildings 621, 624, and 633B); and Supply Building 616.

No security fencing is associated with any of the specific tank facilities in the Logistics Area. No locks are present on the drains or valves on the aboveground Tank Farm 629A-D, 628A, 648A and 648B. Adequate lighting is present at Tank 632 and the POL dispensing station (Building 628). Complete patrols of the area are conducted by the motorized security police patrols during each shift at RMA (three times per day). Each of these sites are described in further detail in the following sections.

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. Tank 632.

   a. Physical Description.

      (1) Tank 632 is an underground storage tank located in the Logistics Area west of Building 613 and southeast of Building 632 (Appendix J, Plate III-B-J.4). The tank was built in 1976, is constructed of steel and has a maximum capacity of 40,000 gallons. It contains fuel oil that is used as an auxiliary fuel for the boilers in Building 632.

      (2) The surface area of the tank is approximately 80 feet long and 20 feet wide enclosed by a chain support on posts. In the north central portion of the chained area there is a 3 to 4 inch concrete pad on the ground surface. The dimensions of the concrete pad are approximately 25 feet long and 6 feet wide. The concrete pad protects the tank from the potential of being ruptured by rocks or vehicles driving over the top of the tank. There are three steel plates cast into the top of the pad. South of the pad is a small concrete pad (about 2 feet by 2 feet) that contains the fill pipe for this tank.

   b. Spill Response.

      (1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls. No high fluid level alarms or automatic shutoff devices are present in this tank. A volume indicator is constructed within the tank to monitor the fluid level. This indicator can be read at ground surface. Minimal fire protection is provided at this tank.

(4) Security. Adequate lighting is provided at Tank 632, and complete patrols of the area conducted by motorized security teams each shift (three times per day).

d. Spill Containment System.

From this tank the ground surface slopes downgradient at 4 to 8 percent towards the north. No aboveground or underground containment or diversionary structures are associated with this underground tank or its loading/unloading area.

e. Spill History.

No reported spills have occurred from this tank.

f. Potential Spills.

The following indicates potential types of equipment failures and a prediction of the direction, rate of flow and the total quantity of diesel fuel which could be discharged from the tank as a result of each major type of failure.

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Diesel Fuel	Ruptured Tank	40,000	Dependent on rupture size	To the north toward the storm drain	None
Diesel Fuel	Spill or overflow during loading/ unloading	Dependent on quantity in the tanker and discharge rate	Dependent on discharge rate	To the north toward the storm drain	None

The loading/unloading area is located approximately 20 feet from the main portion of the tank. A storm drain (grated opening) is located approximately 20 feet to the north of this tank. The tank is loaded/unloaded by mobile fuel trailer trucks. If an accidental spill did occur while loading/unloading the tank or if leakage occurred from the tank, the contents (diesel fuel) would flow down slope and into the storm drain. Containment and/or removal of the spill once it entered the drain would be necessary to prevent it from entering into the storm drain system. No shutoff devices or containment system are present in the storm drain at the tank.

g. General Recommendations.

A containment system should be in place to prevent a spill from entering the storm drain.

2. Building 627, Motor Pool Maintenance Shop.

a. Physical Description.

General vehicle maintenance is provided which includes heavy vehicle maintenance, radiator repair and general battery maintenance. There are usually at least 200 gallons or more of lube and motor oil, and 110 gallons of antifreeze present in the shop. Larger quantities of POL are generally stored in a storage room. Occasionally, accumulation of waste POL may exceed 300 gallons. Stoddard® solvent is contained in two recirculating solvent baths. The removal of waste solvent is by a contractor.

(1) The location of Building 627 is presented in the Logistics Area map in Appendix J (Plate III-B-J.4). Building 627 is the main maintenance facility and has two main service areas for heavy and light vehicle maintenance. The building has a concrete floor which is sufficiently

impervious to the materials stored and used at the shop. There are three drains located inside the facility which discharge to the sanitary sewer system. A one-bay washrack is also located inside Building 627 which drains through an oil-water separator prior to discharging to the sanitary sewer system.

(2) Limited battery maintenance is also performed inside the maintenance shop. A 1,000-gallon steel UST used to store waste oil has been removed from the facility. Materials stored and used at the facility include:

2 35-gallon Stoddard® solvent baths

8 55-gallon drums of waste oil

1 30-gallon drum of waste sulfuric acid

2 55-gallon dispenser drums of lube oil with drip pans

2 55-gallon drums of waste antifreeze

5 5-gallon drum of hydraulic fluid

2 flammable-material storage cabinets (FMSC) containing miscellaneous paints and thinners

1 30-gallon drum of sulfuric acid

(3) A bulk POL storage room is also located inside Building 627. The storage room has no floor drains. Bulk POL in 55-gallon drums are stored on wooden pallets. The materials stored in the room include:

2 55-gallon drums of lube oil

4 5-gallon drums of 2-propanol

1 55-gallon drums of antifreeze

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. Informal inspections are performed daily by maintenance shop personnel as they perform their normal duties. The oil-water separator is inspected monthly to determine maintenance requirements and to ensure proper operation.

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

Secondary containment is not required nor needed at this facility. Spills inside the shop are small, contained by the facility, and are cleaned up as soon as they are detected. Sorbent material (sweeping compound) and shovels are located at Building 627 to cleanup spilled POL. Spills in the washrack are trapped in the oil-water separator which is checked monthly by shop personnel. The area surrounding Building 627 is relatively flat. Spilled material which reaches the environment will remain localized and will be cleaned up promptly.

e. Spill History.

[Information Under Development]

f. Potential Spills.

The potential of a spill reaching and contaminating the environment from this facility is remote. The largest foreseeable spill would be 55 gallons resulting from a ruptured drum and should remain inside the maintenance shop. Spills of acid inside the shop will be cleaned up following procedures presented in Appendix B.

g. General Recommendations.

(1) Remove the accumulated POL from Building 627 on a more frequent basis to eliminate any possible spill potential associated with the wastes.

(2) A containment system should be in place for the acid waste storage area.

(3) Weekly inspections should be performed.

(4) Containers of spent acid should be labelled as hazardous waste or marked with accumulation dates.

(5) Containers should be kept closed.

3. Building 629, Motor Pool Fuel Station.

a. Physical Description.

The motor pool fuel station tanks include: one underground 9,000-gallon diesel fuel tank and two underground 12,000-gallon gasoline tanks located

in the Logistics Area south of Building 629 (Plate III-B-J.4). The tanks are constructed of welded carbon steel plates. A 6-inch-thick concrete pad covers the tanks' fill and vent pipes at the ground surface. The concrete pad protects the tank from rupture.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls. No high fluid level alarms or automatic shutoff devices are present in these tanks. A volume level indicator constructed within these tanks is used to monitor the fluid level. These indicators can be read from the ground surface. Tank volumes are also checked using a dip stick to measure fluid levels in the tanks.

4) Security.

[Information Under Development

d. Spill Containment System.

The area is essentially flat with a slight gradient of less than 1 percent to the east and south. If an accidental spill did occur while transferring fuel to the tanks or if leakage occurred from a tank, the contents would tend to pool and accumulate on the ground surface (see Plate III-B-J.5). Presently, no aboveground or underground containment or diversionary structures are associated with these tanks or loading/unloading areas.

e. Spill History.

No reported spills have occurred from these tanks.

f. Potential Spills.

The following indicates potential types of equipment failure and a prediction of the direction, rate of flow, and the total quantity of diesel fuel or gasoline which could be discharged from the tanks as a result of each major type of failure.

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Diesel Fuel	Ruptured Tank	9,000	Dependent on rupture size	Pooling of contents around tank	None
	Spill or overflow during loading/ unloading	9,000	Dependent on discharge rate	Due to the slight gradient to the east and south, the contents would pool on the ground in those directions	None
Gasoline	Ruptured Tank	12,000	Dependent on rupture	Pooling of contents around tanks	None
	Spill or overflow during loading/ unloading	12,000	Dependent on discharge rate	Due to the slight gradient to the east and south, the contents on the ground would pool in those directions	None

g. General Recommendations.

(1) Provide containment or diversionary structures at the loading/unloading area.

(2) Provide high level alarms for the USTs.

4. Tank Farm, Tanks 629A-629D, and 628A.

a. Physical Description.

(1) This tank farm contains five aboveground tanks located in the Logistics Area west of Building 627 (Plate III-B-J.4). These tanks were constructed in 1942 and 1943. Tanks 629A and 628A are constructed of welded steel plates and were most recently used for storage of diesel fuel. Following are the dimensions and capacities for Tanks 629A, 629D and 628A (Commonwealth, 1983).

TANK IDENTIFICATION	DIMENSIONS	MAXIMUM CAPACITY (gallons)	STATUS (Jan 88)
629A	15'-5" diameter by 8'-10" high	10,000	Inactive
629B	15'-5" diameter by 8'-1" high	10,000	Inactive
629C	15'-5' diameter by 8'-4" high	10,000	Active
629D	15'-5" diameter by 8'-1" high	10,000	Inactive
628A	15'-5" diameter by 8'-1" high	10,000	Inactive

(2) There are carbon dioxide foam fire extinguishers located on the west side of these tanks. There are no constructed foundations under the tanks that would provide protection against corrosion. These tanks have no apparent leaks and appear to be in good condition. An earthen berm surrounds each tank. Tank 629C is the only currently active aboveground storage tank at this site.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

(1) The area is essentially flat with a slight (approximately 1 percent) gradient to the north. The containment systems surrounding Tanks 629A-629D and 628A are earthen berms. These berms are constructed of fine-grained soils. There is no vegetation or erosion protection on the berms, and they have deteriorated from erosion. The top of the berms are rounded and the side slopes flattened with some small gullies. Each berm was surveyed with a hand level, rod, and tape measure to determine the approximate berm height and dimensions. The containment dimensions and capacities of each of the berms surrounding the tanks are listed below.

TANK IDENTIFICATION	BERM AREA TOP (square feet)	BERM AREA BOTTOM (square feet)	BERM AREA AVERAGE (square feet)	MINIMUM BERM HEIGHT (feet)	CONTAINMENT CAPACITY VOLUME (cubic feet)	CONTAINMENT CAPACITY VOLUME (gallons)
629A	1,785	1,170	1,480	1.1	1,620	12,000
629B	1,490	970	1,230	1.1	1,350	10,000
629C	1,365	850	1,110	1.2	1,330	8,800
629D	1,425	910	1,170	1.0	1,170	8,800
628A	1,470	1,060	1,265	1.2	1,520	11,000

(2) The earthen berms surrounding tanks 629A and 628A will fully contain the maximum capacity of the tank (10,000 gallons) with an allowance for precipitation and freeboard. The earthen berm surrounding Tank 629B will contain only the maximum capacity of the tank, and does not allow for any freeboard or precipitation containment. The earthen berms surrounding Tanks 629D and 629C will not fully contain the maximum capacity of the respective tanks.

e. Spill History.

No reported spills have occurred from these tanks.

f. Potential Spills.

The following indicates potential types of equipment failure and a prediction of the direction, rate of flow, and the total quantity of diesel fuel which could be discharged from the tanks as a result of each major type of failure.

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Tank 629A - Regular Diesel	Ruptured Tank	10,000	Dependent on the size of rupture	None	Fully contained by berm
	Spill or overflow during loading/ unloading	Dependent on quantity in the tanker and discharge rate	Dependent on the discharge rate	Accumulation of contents on the ground on the west side	None
Tank 629B - Regular Diesel	Ruptured Tank	10,000	Dependent on the size of the rupture	Over the northwest corner of the berm	Containment of 10,000 gallons does not allow for precipitation and freeboard
	Spill or overflow during loading/ unloading	Dependent on the quantity in the tanker and discharge rate	Dependent on discharge rate	Accumulation of the contents on the ground on the west side	None
Tank 629C - Regular Diesel	Ruptured Tank	10,000	Dependent on the size of the rupture	Over the northwest corner of The berm	Containment of 10,000 gallons does not allow for precipitation and freeboard

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Tank 629D - Regular Diesel	Ruptured Tank	10,000	Dependent on the size of the rupture	Over the northwest corner of the berm	Containment of 8,800 gallons
	Spill or overflow during loading/ unloading	Dependent on quantity in the tanker and discharge rate	Dependent on the discharge rate	Accumu-lation of contents on the ground on the west side	None
Tank 628A - Regular Diesel	Ruptured Tank	10,000	Dependent on the size of the rupture	None	Fully contained by berm
	Spill or overflow during loading/ unloading	Dependent on quantity in the tanker and discharge rate	Dependent on the discharge rate	Accumu-lation of contents on the ground on the west side	None

If a spill did occur at Tanks 629B, 629C, or 629D, the contents would spill out over the northwest corner (low point of berm) and collect either along the gravel road west of the tanks or possibly accumulate on the ground near the tanks.

g. General Recommendations.

The following recommendations are made at this site:

(1) The berms are constructed of fine-grained soils which will temporarily contain spills. The berms should be lined with materials that are sufficiently impervious to prevent seepage.

(2) Repair all berms that have been deteriorated by wind and water erosion.

(3) Provide foundations under Tanks 629A, 629B, 629C, 629D and 628A for protection against corrosion.

(4) Provide berms surrounding Tanks 629D and 629C which will fully contain the maximum capacity of the tanks plus an allowance for precipitation.

5. Building 618, Supply Division Warehouse.

a. Physical Description.

Building 618 is a material storage facility. The location of the building is shown on the Logistics Area map (Plate III-B-J.4). The warehouse has concrete floors. No floor drains are present in the facility. The storage area of the building is supplied with an eye lavage. The main function of the warehouse is to provide long-term storage of equipment and limited quantities of POL. Periodically, the POL products are delivered to and removed from the facility. However, since there are only a few active operations at RMA, these activities are limited. Materials stored at Building 618 include:

Fourteen 5-gallon drums of sodium hydroxide,

Fifty 5-gallon drums of lube oil, and

miscellaneous quantities of paints and thinners.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. Weekly inspections are performed by warehouse personnel to inspect containers and detect leaks. Additional informal inspections are performed as personnel perform their normal duties. Inventory records are maintained at Building 618.

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

Secondary containment is not required nor provided for the facility.

e. Spill History.

[Information Under Development]

f. Potential Spills.

The potential of a material spill reaching the environment is remote. Spills inside each facility will remain confined and will be cleaned up upon detection. The largest foreseeable spills would probably be 55 gallons if a drum ruptured and emptied its contents. The possibilities of spills occurring during material delivery operations is small. Sorbent material and hand tools are available to cleanup spills.

g. General Recommendations.

(1) Perform a detailed chemical and physical analysis of the stored hazardous wastes.

(2) Clearly and properly mark or label stored hazardous waste.

6. Buildings 621, 624, and 633B, DRMO storage.

a. Physical Description.

(1) Operations at the DRMO are tenant activities at RMA. The primary operation which takes place at the DRMO is the storage of materials awaiting resale or final disposal. The products which present any reasonable threat to the environment, if spilled, are stored in Building 621, 624 or 633B. Building 621 and 624 are single story buildings with concrete floors and wooden walls. No floor drains were observed at Building 621. Materials stored in Building 621 include various small quantities of lube oil. Materials stored in Building 624 include various small quantities of lube oil and photographic fixers. The only ongoing operations at Buildings 621, 624 and 633B are unloading and loading of delivery trucks, and extreme care is exercised by personnel performing these activities at each building. Containers (drums or cans) are never opened at the DRMO.

(2) Building 633B is used for the storage of flammable materials. It is a single story building with a concrete floor and glazed structural tile walls. Materials stored in Building 633B include various quantities of paints and thinners.

(3) An outdoor equipment and material storage area is located south of Building 621. The area is asphalt paved and is relatively flat. Materials which could potentially spill over are stored in the outdoor area and include various electrical transformers. These transformers contain less than 50 milligrams per liter (mg/L) of PCBs. The DRMO does not

accept physical custody of PCB transformers or PCB-contaminated transformers.

b. Spill Response.

Small spills of POL are cleaned up as they occur at each facility.

c. Spill Prevention.

(1) Inspection Procedures. Only informal inspections of the DRMO facilities are performed. These inspections are conducted as DRMO personnel perform their normal duties. Regular inspections are also performed by the RMA FPPB to check for spills and potentially hazardous conditions.

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

No secondary containment is needed or required for Buildings 621, 624 and 633B. As a result of the small quantities of spillable materials stored in Building 624, the floor drain is not a concern at this time.

e. Spill History.

One drain located in the northwest corner of Building 624 showed some signs of having been a spill site.

[Information Under Development]

f. Potential Spills.

The possibility of a large spill occurring at Building 621, 624 or 633B and contaminating the environment is remote. Spilled material will remain inside each facility, and good housekeeping and sound material handling procedures greatly reduce the potential for spills. The potential of a spill occurring at the outdoor storage yard is much greater. The DRMO has materials for the cleanup of spills.

g. General Recommendations.

[Information Under Development]

7. Building 616, Supply.

a. Physical Description.

Building 616 is a single story warehouse structure constructed by the Army in 1942. It is located in the southwestern quarter of Section 3, between buildings 614 and 618. Building 616 measures approximately 241 feet by 43 feet by 13 feet high. It has a cement floor, wooden columns, corrugated siding, and asphalt shingles over composition shingle roofing. Utilities for this warehouse include natural gas, electricity, and telephone.

Current use of Building 616 includes a storage area for miscellaneous administrative materials such as desks, chairs, and filing cabinets. Additionally, the building is utilized for the storage of drummed hazardous waste, and hazardous materials no longer actively used at RMA.

Building 616 consists of two sections. The south section occupies approximately one third of the building space, and contains a large quantity of sodium carbonate anhydrous, twelve empty 55-gallon drums marked "military grade lube oil", and fifteen 55-gallon drums of alumina. The north section of Building 616 contains twenty-two 55-gallon metal drums and 8-overpack reclamation drums containing hazardous waste from Building 1607. These drums are awaiting disposal by DRMO. Additionally, there were two full pallets of containers of sulfuric acid, eight 55-gallon drums containing varying amounts of miscellaneous solvents including toluene, MEK, hexane, isopropanol, methanol, and heptane, and three 55-gallon drums of denatured alcohol. The majority of these drums were stored on wooden pallets in various locations in Building 616.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

Building 616 has no secondary containment system.

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

(1) Adopt and enforce detailed inspection schedules and the use of checklists.

(2) Properly mark or label hazardous wastes stored in Building 616.

(3) Conduct a detailed chemical and physical analysis of hazardous waste identified in Building 616.

(4) Provide Building 616 with sufficient spill response equipment to be used in case of a hazardous or emergency situation.

(5) Provide Building 616 with a system of secondary containment.

NORTH PLANTS AREA

A. GENERAL DESCRIPTION

The North Plants Area is located in the north central portion of RMA and is shown in relation to the rest of RMA on the General Site Map in Appendix J (Plate III-B-J.2). The areas identified as potential spill sites are shown in greater detail on the North Plants Area map (Plate III-B-J.7). Areas identified as potential spill sites include Tank 1510, Tank Farm 1505, Day Tank South of Building 1611, Day Tank North of Building 1611, Building 1701, Building 1727 Sump, and Building 1713.

The North Plants Area is surrounded by 6-type fences. Access within the area is restricted to authorized personnel. All of the tank facilities are inside the perimeter of this locked, fenced area. No locks exist on any of the drains, drain values, values, starter controls, or pumps. Lighting is not normally available in the tank areas. Since this area is inactive, it is patrolled by security police only at infrequent intervals.

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. Tank 1510.

   a. Physical Description.

      (1) Tank 1510 is an aboveground tank located in the North Plants Area, southeast of Building 1501. The tank is 40 feet in diameter by 19 feet high and is mounted on a 44-foot-diameter concrete foundation. The capacity of this tank is 200,000 gallons. It contains fuel oil which supplies the incinerators and boilers in the North Plants Area. The tank is constructed of welded steel plates. This tank may be filled through two small pipes that run underground from the loading/unloading station located to the southwest of the tank. Two outlet pipes located on the north side of the tank run into a concrete pipe trough located west of the tank. One pipe runs to the north to Tank Farm 1403 and the other pipe runs to the south up to the loading/unloading station.

   b. Spill Response.

      (1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

      (2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

      (3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls. There are no high-fluid-level alarms or automatic shutoff devices present. A volume indicator is constructed within the tank to monitor the fluid level. The volume-level indicator can be read at ground surface.

(4) Security.

[Information Under Development]

d. Spill Containment System.

(1) The containment structure surrounding the tank is an earthen berm composed of fine-grained soils. The berm is about 10 feet wide at the base, 2 feet wide at the top and 1 to 2 feet high. The structure is eroded particularly on the north side. The top inside dimensions of the berm are 96 feet wide by 96 feet long and the bottom inside dimensions are 84 feet wide by 84.5 feet long. The berm was measured and surveyed with a hand level, rod, and tape measure to determine the dimensions and containment capacity. The dimensions and capacity of the berm surrounding the tank are listed below.

TANK IDENTI-FICATION	BERM AREA TOP (square feet)	BERM AREA BOTTOM (square feet)	BERM AREA AVERAGE (square feet)	MINIMUM BERM HEIGHT (feet)	CONTAINMENT CAPACITY VOLUME (cubic feet)	CONTAINMENT CAPACITY VOLUME (gallons)
1510	9,101	7,081	8,091	0.8	6,473	48,000

The earthen berm surrounding Tank 1510 will not fully contain the maximum capacity of the tank.

(2) The loading/unloading station does not have a containment or quick drainage system. The area is essentially flat on the west side of the station. A spill in this area would accumulate and pond in the parking lot. If the spill involved a large quantity, it would flow along the road and into the culverts and ditches. The culverts flow to the east, into First Creek. The gradient on the east side of the station is approximately 6 percent to the east. A spill in this direction would flow and tend to accumulate on the ground. A storm drainage and tree cover map for the North Plants Area is provided in Appendix J (Plate III-B-J.8).

(3) An underground pipeline connects Tank 1510 to Building 1611 and Building 1703, 1711 and 1712. These pipes were not inspected. No containment or diversionary structures are associated with them. Leakage in the pipeline that reached the surface would enter an unnamed, intermittent tributary to First Creek.

e. Spill History.

A reportable spill occurred at Tank 1510 as described below:

(1) Date and Time of Discovery: 10 April 1982, 1000 hours (Mountain Standard Time).

(2) Severity of Incident: The incident was a minor spill of fuel oil.

(3) Location of Incident and Specific Areas Affected by Spill: The spill was located along the southeast sides of Buildings 1703, 1711, and 1712. The area affected by the spill included the ground near Buildings 1703, 1711, and 1712 plus the uppermost portion of an unnamed, intermittent tributary to First Creek.

(4) Cause and Source of Incident: The spill was caused by the failure of an underground metallic pipe used for the transfer of fuel oil from Tank 1510 to Building 1611, 1704, and 1712. The pipe failed because of corrosion.

(5) Type and Estimated Amount of Pollutant. The spill consisted of fuel oil. The quantity of fuel oil spilled was estimated at not less than 500 gallons and not more than 1,000 gallons.

(6) Damage Impact on Surroundings: The spill resulted in the contamination with fuel oil of (1) the ground around the pipeline, (2) the uppermost portion of an unnamed, intermittent tributary to First Creek, and (3) the floor of Building 1711.

(7) Corrective Action to Eliminate Pollution Source: Corrective actions taken to limit the potential for a spill were as follows:

(a) Stopping the flow of fuel oil into the failed pipe by closing the valve at Tank 1510;
(b) Blocking the unnamed, intermittent tributary to First Creek;
(c) Placing into barrels the fuel oil which ponded on the ground surface;
(d) Removing with absorbent material the remaining fuel oil ponded on the ground surface;
(e) Removing with absorbent material the fuel on the floor of Building 1711.

(8) Remedial Action to Remove Pollutant: Remedial actions to remove the pollutant consisted of the removal and replacement of the underground pipe which failed plus the removal and replacement of the soil contaminated with fuel oil.

f. Potential Spills.

The following table indicates potential types of equipment failure and a prediction of the direction, rate of flow and total quantity of fuel oil which could be discharged from Tank 1510 as a result of each major type of failure. If a spill did occur, the contents would flow over the northeast corner and north side (low points on the berm) of the berm into a drainage ditch that flows toward Building 1710 (see Plate III-B-J.8 in Appendix J).

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Fuel Oil	Ruptured Tank	200,000	Dependent on the rupture size	To the north	Containment of 48,000 gallons only
Fuel Oil	Spill or overflow during loading/ unloading	Dependent on discharge rate and quantity in the tanker	Dependent on the discharge rate and quantity in the tanker	To the south and east at the refueling station	None
Fuel Oil	Pipeline Rupture	200,000	Dependent on the rupture size	To the east	None, flow would enter unnamed tributary of First Creek

g. General Recommendations.

The following recommendations were made for the potential spill site at Tank 1510.

(1) The berm is constructed of fine-grained soils that will temporarily contain a spill, but the soils are not sufficiently impervious to prevent seepage and contamination of the berm and containment area soil will occur. A berm should be constructed around this facility of impervious material to contain a spill from this area.

(2) The berm is eroded and will not fully contain the maximum capacity of the tank. This berm should be repaired to contain a maximum spill from the tank.

(3) Construct a containment or diversionary structure at the loading/unloading area.

2. Tank Farm 1505.

a. Physical Description.

(1) Tank Farm 1505 is located in the North Plants Area, west of Building 1601 (see Plate III-B-J.7). It contains 10 metal tanks mounted horizontally on concrete piers in two rows. The capacity of each tank is 18,000 gallons, and the total capacity is 180,000 gallons. The tanks contain sodium hydroxide (caustic) which was used as a neutralizing agent in some demilitarization processes. The tanks were constructed in 1951 of carbon steel plates. No future acquisition of sodium hydroxide is anticipated. The contents of each tank are listed below.

Row/ Compartment	Tank Number		Sodium Hydroxide (gallons)
Eastern	F5104		700
	F5105		1800
	F5106		7300
	F5107		Empty
	F5108		Empty
		Sub-Total	10,000 Gallons
Western	F5102		100
	F5103		Empty
	50097		400
	50098		Empty
	50099		Empty
		Sub-Total	500 Gallons
		Total	10,500 Gallons

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

(a) Because sodium hydroxide (caustic) is a strong base, it reacts violently with acids and is corrosive towards aluminum and zinc. Use of acids and aluminum or zinc in the area is avoided.

(b) Sodium hydroxide (caustic) reacts with light metals forming hydrogen. It reacts violently with halogenated hydrocarbons. Use of these substances in the area is also avoided.

(c) The substance is corrosive to the eyes, skin and respiratory tract. Protective goggles and clothing are used when working with caustic.

(d) In case of spillage, large quantities of water are added to dilute it.

(e) Hazardous materials must be stored and transported in DOT approved shipping containers. Both the containers and the transporting vehicles must be properly labeled in accordance with DOT and hazardous or toxic materials and waste standards.

(3) Controls. There are no high fluid level alarms, automatic shutoff devices or gauges on these tanks.

(4) Security.

[Information Under Development]

d. Spill Containment System.

(1) Surrounding this tank farm is a gravel berm that has been eroded. The structure is divided into two compartments, each containing five tanks. There are prairie dog holes, gullying, and vegetation growth on all sides of the structure. The common berm, dividing the eastern and western compartments, is approximately 1 foot high and 12 feet wide at the top. The eastern berm is basically nonexistent. The northern berm is also deteriorated but not as severely as the eastern berm. The south and west sides of the berm are cuts into the adjacent hillside approximately 8 feet high. The floor of both compartments is gravelly soil. The approximate dimensions and capacity of the western containment compartment are listed below.

TANK IDENTIFICATION	BERM AREA TOP (square feet)	BERM AREA BOTTOM (square feet)	BERM AREA AVERAGE (square feet)	MINIMUM BERM HEIGHT (feet)	CONTAINMENT CAPACITY VOLUME (cubic feet)	CONTAINMENT CAPACITY VOLUME (gallons)
Western Compartment 1505	3,800	2,100	2,950	0.7	2,070	15,000

e. Potential Spills.

The following indicates potential types of equipment failure and a prediction of the direction, rate of flow and total quantity of sodium hydroxide (caustic) which could be discharged from Tank Farm 1505 as a result of each major type of failure.

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Sodium Hydroxide (Caustic)	Ruptured tank in Eastern Compartment	18,000	Dependent on rupture size	To the east and southeast	None
Sodium Hydroxide (Caustic)	Ruptured tank in Western Compartment	18,000	Dependent on rupture size	To the east and southeast	Containment of 15,000 gallons
Sodium Hydroxide (Caustic)	Spill or overflow during loading/ unloading	Dependent on discharge rate, quantity being transferred	Dependent on discharge rate	At tank farm: to the east and south-east. At pipe line: accumulate near the railroad tracks	None at the eastern structure. Partial containment at the western structure
Sodium Hydroxide (Caustic)	Ruptured pipeline	Dependent on discharge rate, quantity being transferred	Dependent on discharge rate	To the east and southeast	None

(1) An accidental spill in the eastern compartment would not be contained due to the deterioration of the berm. The contents would flow to the east and southeast across the ground and gravel road and accumulate in the ditches. The ditches are interconnected and flow to the north into catch basins within the system. A large discharge could reach the Sand Creek Lateral (see Plate III-B-J.8 in Appendix J).

(2) The western containment compartment will not fully contain the maximum capacity of the largest single tank. If a spill did occur, the contents would flow to the east and southeast across the ground and gravel road as described above.

(3) The pipeline is an aboveground system that traverses upgrade to the tank farm from the loading area. It is located southeast of the tank farm at the railroad tracks. No containment or diversionary structures are associated with this pipeline. The ground surface slopes to the east and southeast around the pipeline. An accidental spill along the pipeline would flow in a southeasterly direction and accumulate in the ditches near the loading/unloading station. The pipeline has two main cutoff devices; one is located at the loading station and the other at the tank farm. Several drain valves within the pipeline system are used to drain the system if a break in the pipeline is detected.

(4) The area around the loading/unloading station at the railroad tracks is essentially flat. No containment or diversionary structures are present except for a ditch on the west side of the tracks. An accidental spill would accumulate within this ditch or accumulate on the level ground surface near the railroad tracks.

(5) The second loading/unloading station is in the vicinity of the tank farm. As previously mentioned, this area slopes to the east and southeast. The loading/unloading station is located on the east side of the tank farm. No containment or diversionary structures are present at this facility. An accidental spill would flow to the east along the gravel road and accumulate in the ditch near the railroad tracks.

f. Spill History.

No reported spills have occurred from Tank Farm 1505.

g. General Recommendations.

The following recommendations are made for the potential spill site located at Tank Farm 1505.

(1) No containment structure exists for the eastern five tanks. Containment structures should be constructed for these tanks.

(2) The western containment structure will not fully contain the maximum capacity of the single largest tank. Secondary containment should be provided sufficient to contain the maximum capacity of the single largest tank.

(3) The berms are composed of gravelly material with prairie dog holes and gullying evident. These berms should be repaired.

(4) The containment area floor is gravelly soil which is not sufficiently impervious to prevent seepage, and containment could not occur. This should be replaced or lined with impervious material.

(5) No containment or diversionary structures exist at the loading/unloading areas. These should be constructed at this area.

(6) No fail-safe engineering devices exist such as high fluid alarms, automatic shutoff devices or gauges available to monitor the fluid level in the storage tanks. These should be provided.

3. Day Tank South of Building 1611.

a. Physical Description.

(1) This tank is an aboveground tank located in the North Plants Area, south of Building 1611 (see Plate III-B-J.7). The tank contains fuel oil and is used as a daily supply tank for Building 1611. The capacity of the tank is 4,500 gallons, and it was constructed of welded carbon steel plates. The tank is contained by a sump consisting of a concrete slab on grade and concrete side walls. The concrete is in good condition. The tank is elevated approximately 3 feet from the bottom of the slab. Located at the bottom southeast corner of the structure is a drain valve that can be used to drain the sump. There is a permanent ladder constructed on the northeast side of the tank to inspect the condition of the tank and monitor the fluid level.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls. No high fluid level or automatic shutoff devices are present in this tank. A fluid level indicator may be constructed within this tank on the top portion of the tank in a locked metal box. However, an alternate means of monitoring the fluid level is with a dip stick that is located near the tank in the sump.

(4) Security.

[Information Under Development]

d. Spill Containment System.

The concrete sump containment structure has sidewalls 10 inches thick and 2.5 feet high. In plan, the sump is 19 feet wide by 19 feet long.

Containment capacity is 790 cubic feet or approximately 5,900 gallons. The concrete sump would fully contain the contents of the tank.

e. Spill History.

A reportable spill has occurred at this tank. Information available concerning this spill follows:

(1) Date: August 15, 1981.

(2) Location of the Incident: Day tank on south side of Building 1611.

(3) Cause of the Incident: Equipment failure.

(4) Type and Estimated Amount of Pollutant: The spill consisted of No. 2 fuel oil. The quantity of the fuel oil spill was 11,430 gallons.

(5) Corrective Action: The spilled fuel oil and contaminated soil were removed. The equipment was repaired and a new concrete dike containment system for the tank was installed.

f. Potential Spills.

The following indicates potential types of equipment failure and a prediction of the direction, rate of flow and total quantity of fuel oil which could be discharged from the tank as a result of each major type of failure.

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Fuel Oil	Ruptured Tank	4,500	Dependent on rupture size	None	Fully contained
Fuel Oil	Ruptured tank (with major supply tank)	204,500 (includes contents from Tank 1510)	Dependent on rupture size	To First Creek	Containment of 5,900 gallons
Fuel Oil	Spill or overflow during loading/ unloading	204,500 (includes contents from Tank 1510)	Dependent on discharge rate	To First Creek	Containment of 5,900 gallons

Based on information provided by RMA, the day tank is supplied by Tank 1510 which has a capacity of 200,000 gallons. When the fuel in the day tank is lowered to a specific level, the automatic supply line is activated. The automatic supply line is activated by a high/low switch in the system

and the fuel is transferred by a gravity pump into the day tank. If a rupture in the day tank occurred, the fluid level would be lowered to the point where the supply system would be activated. If the entire supply of Tank 1510 also discharged, an extremely large spill could occur and flow to the east and southeast and enter into First Creek (see Plate III-B-J.8).

g. General Recommendations.

The following recommendations are made for the potential spill site.

(1) There are no containment or diversionary structures located at or near First Creek to prevent an accidental discharge from entering the waterway. These should be constructed.

(2) A manual discharge (feed valves) for Tank 1510 is needed to operate the flow (open or closed) of the fuel oil into this tank.

4. Day Tank North of Building 1611.

a. Physical Description.

(1) This tank is an aboveground tank located in the North Plants Area, north of Building 1611 (see Plate-III-B-J.7). This tank contains fuel oil and is used as a daily supply tank for Building 1611. The capacity of the tank is 1,500 gallons, and it was constructed of welded carbon steel plates. The tank is contained by a concrete sump with a slab on grade and walls. The walls are in fair condition with some minor cracking. The floor of the containment structure is severely spalled. The tank sits on circular concrete footing approximately 2 feet thick, which places the bottom of the tank at the same elevation as the top of the sump. Located at the bottom of the northeast corner of the structure is a drain valve that can be used to drain the sump.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls. No high fluid or automatic shutoff devices are present in this tank. There does not appear to be a volume level indicator constructed within this tank to monitor the fluid level.

(4) Security.

[Information Under Development]

d. Spill Containment System.

The concrete sump containment structure has sidewalls 10 inches thick and 2 feet high. In plan, the sump is 14 feet wide by 14 feet long. Containment capacity is 390 cubic feet or approximately 2,900 gallons. The sump would fully contain the contents of the tank if an accidental spill occurred.

e. Spill History.

No reported spills have occurred at this tank. However, there are oil stain marks on the concrete walls above the floor which may indicate past spills.

f. Potential Spills.

The following indicates potential types of equipment failure and a prediction of the direction, rate of flow and the total quantity of fuel oil which could be discharged from the tank as a result of each major type of failure.

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Fuel Oil	Ruptured Tank	1,500	Dependent on rupture size	None	Fully contained
Fuel Oil	Ruptured tank (with major supply tank)	201,500 (includes contents from Tank 1510)	Dependent on size of the rupture	To the northeast (possibility of entering First Creek)	Containment of 2,900 gallons
Fuel Oil	Spill or overflow during loading/ unloading	201,500 (includes contents from Tank 1510)	Dependent on discharge rate	To the northeast (possibility of entering First Creek	Containment of 2,900 gallons

Based on information supplied by RMA, this day tank can be supplied by Tank 1510 which has a capacity of 200,000 gallons. When the fuel level in the day tank is lowered to a specific level, the automatic supply line is activated. The automatic supply line is activated by a high/low switch in the system and the fuel is transferred by a gravity pump into the day tank.

Tank 1510 is the primary supply tank to this facility. If a rupture in the day tank occurred, the fluid level could be lowered to the point where the supply system would be activated. This could produce an extremely large spill that would flow to the east and discharge into First Creek (see Plate III-B-J.8). The area around this tank slopes slightly northeast at approximately 1 percent towards First Creek.

g. General Recommendations.

The following recommendations are made for the potential spill site located at this tank.

(1) Concrete floor of the containment sump is severely spalled at the surface and at depth. The floor should be repaired.

(2) There are no containment or diversionary structures located at or near First Creek to prevent an accidental discharge from entering the waterway. These should be provided.

(3) A manual discharge (feed valve) is needed at Tank 1510 to operate the flow (open or close) of fuel oil into this tank.

5. Building 1727, Sump.

a. Physical Description.

Waste waters presently collected in the 1727 sump are from the Building 1501 basement duct sumps and the Building 1506 sump pit. The Building 1727 sump is constructed of reinforced concrete, approximately 30 feet long, 20 feet wide, and 18 feet deep, and is covered by removable corrugated steel plates. The sump has a capacity of approximately 80,000 gallons. The 300 gpm vertical lift pumps are installed at the south end of the sump. Waste water is pumped into a storage tank situated outside of Building 1713. This tank provides storage for the waste water prior to treatment.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. The accumulation point area will be inspected weekly for all general conditions, including checking for leaks, corrosion to containers, and any needed maintenance to the facility.

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

[Information Under Development]

6. Building 1713, Treatment Operations.

a. Physical Description.

Waste water from the Building 1727 sump is treated in Building 1713. Treatment consists of pH adjustment followed by activated alumina and activated carbon adsorption. One 21,000-gallon red tank (which is rented for emergency response related to potential sump overflow) is used to store waste external to Building 1713, and three storage tanks (1,500 gallons, 1,500 gallons, and 350 gallons) are located in the building.

The effluent from the treatment system is discharged to a manhole which connects to the sanitary sewer treatment system.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

[Information Under Development]

SOUTH PLANTS AREA

A. GENERAL DESCRIPTION

The South Plants Area is located in the southern central portion of RMA and is shown on the General Site Map (Plate III-B-J.2). Potential spill sites within this area are detailed further on the South Plants Area map (Plate III-B-J.10). Sites identified as potential spill locations include: Tank Farm, Tanks 321A, 321B, and 321E; Fueling Station; Building 742; Building 321 (Heating Plant); Buildings 331 and 332 (General Purpose Warehouses); Buildings 368 and 372A (Gaseous Chlorine Storage Facilities); Building 543 (Maintenance Shop); Tanks 463D and 805 (Hydrazine Blending and Storage Facility); Building 313 (Laboratory); Building 741 (Laboratory); Building 743 (Laboratory); Building 451 (Shell Hazardous Waste Storage Warehouse); South Plants Liquid Waste Treatment Facility; and Building 883 (Warehouse). Each of these sites is described in further detail in the following section.

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. Tank Farm 321, Tanks 321A, 321B, and 321E.

   a. Physical Description.

      (1) Tank Farm 321 is comprised of three aboveground tanks, Tanks 321A, 321B, and 321E, located in the South Plants Area east of Building 244 (see Plate III-B-J.2). Tank 321A is on the east, Tank 321B is on the west, and 321E on the north. These tanks contain fuel oil that is used in the Building 321 heating plant. The tanks are constructed of welded steel plates. The following table shows dimensions and capacities of the tanks.

TANK IDENTIFICATION	DIMENSIONS	MAXIMUM CAPACITY (gallons)	STATUS (Jan 88)
321A	24'-6" diameter by 20'-6' high	72,000	Active
321B	23' diameter by 20'-6" high	64,000	Active

TANK IDENTIFICATION	DIMENSIONS	MAXIMUM CAPACITY (gallons)	STATUS (Jan 88)
321E	44'-6" diameter by 34'-6" high	416,000	Active

(2) The tanks are located on soil with no constructed foundations that would provide protection against corrosion. There are gravel covered earthen berms surrounding each tank for secondary containment. The tanks are equipped with steam coils to reduce the viscosity of the fuel oil to a pumpable condition. A ladder provides access to the tank roof and to a flame arrestor mounted thereon. The external condition of these tanks is good.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls. An automatic tank gauge is attached.

(4) Security. No locks exist on any of the drains, drain valves, valves, starter controls or pumps at the tank facilities. Lighting of all of the tanks appears to be adequate. Complete patrols are conducted by the mobile security police during each shift at RMA (three times per day).

d. Spill Containment System.

(1) The containment structures surrounding the tanks are earthen berms composed of fine-grained soil which are covered with gravel to inhibit erosion. The floor of the berm is previous soil. Each of the berms was surveyed and measured with a hand level, rod and tape measure to determine the dimensions and capacities. The following presents the dimensions and capacity of the berms surrounding the tanks.

TANK IDENTIC-FICATION	BERM AREA TOP (square feet)	BOTTOM (square feet)	AVERAGE (square feet)	MINIMUM BERM HEIGHT (feet)	CONTAINMENT CAPACITY VOLUME (cubic feet)	VOLUME (gallons)
321A	4,032	2,310	3,171	3.3	10,460	77,900
321B	3,640	2,420	3,030	3.3	10,019	74,500
321E	14,175	10,502	12,338	3.9	48,118	358,500

(2) The berm will fully contain the maximum contents of Tanks 321A and 321B, but the earthen berm around Tank 321E will only contain 86 percent of the maximum tank capacity.

e. Spill History.

No reported spills have occurred from these tanks.

f. Potential Spills.

The following indicates potential types of equipment failure and a prediction of the direction, rate of flow and the total quantity of fuel oil which could be discharged from the tank as a result of each major type of failure.

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Tank 321A No. 6 Fuel Oil	Ruptured Tank	72,000	Dependent on rupture size	None	Fully contained
Tank 321B	Ruptured Tank	64,000	Dependent on rupture	None	Fully contained
Tank 321E Contaminated Fuel Oil	Ruptured tank	416,000	Dependent on rupture size	To the southeast	Containment of 358,500 gallons
Fuel Oil	Spill or overflow during loading/ unloading	Information under development	Dependent on discharge rate	To the southeast at Tank 321E To the northeast at Tank 321B	None

If an accidental spill did occur at Tank 321E, the contents could flow over the southeast corner of the berm and accumulate along the ground on the south side of the tank.

g. General Recommendations.

(1) The berms are constructed of fine grained soils which will temporarily contain spills, but the soils are not sufficiently impervious to prevent seepage and contamination of the berms and containment area soil. The berms are also eroded. The berms should be lined with impervious material to prevent seepage of oil.

(2) Sufficient secondary containment should be provided to contain a spill from Tank 321E.

(3) Containment or diversionary structures at the loading/unloading area for this facility should be provided.

(4) A means by which the tanks are protected against corrosion should be provided.

2. Fueling Station.

a. Physical Description.

A small fueling station is adjacent to Tank Farm 321 (see Plate III-B-J.10). It is used by Stearns Roger, an RMA contractor. The fueling station consists of two 300-gallon ASTs used to store gasoline plus one 55-gallon drum of diesel fuel for dispensing into SR operated vehicles. The spill control devices present include a containment basin surrounding the ASTs and 55-gallon drum and dead-man nozzles attached to the 1-inch standard rubber hoses. The gasoline flows by gravity into vehicles. Diesel fuel is transferred by manual pumps installed in the 55-gallon drum; no other fuel pumps are present.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. Informal inspections are performed at the fuel point by Stearns Roger personnel as they pass by the ASTs.

(2) Operating Procedures and Information. Fuel is delivered in a commercial tank truck at the request of Stearns Roger. The fuel is dispensed into vehicles by personnel who have obtained the keys to the

fuel pumps from the Stearns Roger administrative office. Fire extinguishers are present on the commercial tank truck should their use be required during bulk delivery operations. In addition, a fire extinguisher is mounted on a post at the fueling station.

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

The containment basin has concrete sides and bottom; the interior is coated with polyurethane. The volume of the basin is sufficient to contain the entire contents of a 300-gallon AST, plus 10 percent and appropriate allowance for precipitation.

e. Spill History.

No reported spills have occurred from this area.

f. Potential Spills.

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Tank 1	Ruptured Tank	300	Dependent on rupture size	None	Fully contained
Tank 2	Ruptured Tank	300	Dependent on rupture	None	Fully contained
55-gallon diesel fuel	Ruptured Drum	55	size	*	*
Gasoline	Spill or overflow during loading/ unloading	Dependent on discharge rate	Dependent on discharge rate	*	None

* Information Under Development

g. General Recommendations.

Perform regular inspections of the fueling station including the ASTs and surrounding area.

3. Building 742, Pesticide/Herbicide Storage.

a. Physical Description.

(1) Building 742 is located in the South Plants Area (see Plate III-B-J.11). The following three rooms of the building are of concern:

(a) Mixing room

(b) Insecticide storage room

(c) Pesticide storage room

The storage and mixing rooms have poured concrete floors and drain blocks. There are drain blocks and 6-inch high poured concrete blocks at the doorways. The insecticides and pesticides are stored on wooden pallets off the floor. Some are also stored in locked metal cabinets. Container sizes range from 250 milliliters to 1 gallon for liquids. Powders are stored in 5-gallon cans.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. Visual inspections of the concrete floors and drain blocks for deterioration are conducted regularly. Containers are inspected as they are received and before use to ensure that they are intact.

(2) Operating Procedures and Information.

(a) In order to properly handle an insecticide or herbicide spill, spill kits containing directions for use have been prepared. The kits are labeled, listing the contents, and designated for use in handling pesticides or herbicide spills only. The kits are strategically placed where spills are most likely to occur. The kits are sealed.

(b) Depending on the particular pesticide, chlorine bleach, caustic soda (lye, sodium hydroxide) or lime can be used to effectively decontaminate most spills. Many pesticides, especially the organophosphate pesticides, decompose when treated with lye or lime. Fewer pesticides are decomposed by bleach (sodium hypochlorite). Other pesticides which cannot be effectively decontaminated by the above procedures are treated with only

detergent and water. The residues are then drained to the wastewater treatment tank.

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

(1) No drainage is associated with the mixing and storage room. All of the rooms have poured concrete floors and drain blocks for containment of any spill which could occur.

(2) The bulk loading/unloading is performed inside Building 742 on a concrete floor. No aboveground containment or diversionary structures are present at this location. However, because of the small quantities, a spill would probably not flow off of the concrete floor.

e. Spill History.

No reported spills have occurred at this site.

f. Potential Spills.

The following indicates potential types of equipment failure and a prediction of the direction, rate of flow and total quantity of the insecticide or herbicide which could be discharged as a result of each major type of failure.

CONTENTS	MAJOR TYPE OF FAILURE	POTENTIAL TOTAL QUANTITY (gallons)	RATE OF FLOW	DIRECTION OF FLOW	SECONDARY CONTAINMENT
Insecticide or herbicide	Broken container in Bldg. 742	Dependent on container size	None	None	Fully contained
Insecticide or herbicide	Spill or overflow during loading/ unloading	Dependent on discharge rate	Dependent on discharge rate	To the north and east	None

g. General Recommendations.

(1) Seal cracked curbs.

(2) The ventilation system in the pesticides storage room should be improved.

(3) The pest controls should be in visual or audible contact with someone else while mixing pesticides or herbicides, for health and safety reasons.

(4) A Pest Management Plan should be developed as directed by the Department of Defense Directive.

4. Heating Plant.

a. Physical Description.

The heating plant is located inside Building 321 (see Plate B-III-J.10) and is operated by SR under contract to PMRMA. The facility serves as a heating plant for the South Plants Area. There is a UST located near the northwest corner of Building 321 that contains water contaminated with DCPD, and an aboveground tank containing oil contaminated with DCPD. A hazardous materials storage area is located west of Building 321.

Building 321 is constructed of structural clay tile walls and concrete floors. There is a drainage network inside the building which collects materials spilled inside the facility. The wastes, including boiler blowdown, are collected by the drainage system and are discharged to a tributary of the Sand Creek Lateral. Materials stored and used inside Building 321 include:

two 55-gallon drums cyclohexamine

two 55-gallons drums TP2800 (proprietary water treatment)

five 5-gallon cans of turbine oil

five 55-gallon dispenser drums of lube oil

The UST is located at the northwest corner of the heating plant. The tank was built in 1941, is constructed of steel and has a maximum capacity of 12,000 gallons. It contains 10,000 gallons of water contaminated with DCPD.

The hazardous materials storage area is located west of Building 321. Materials stored in this area are used in support of the heating plant.

The contaminated oil contained in the aboveground, steel, number-6 oil-supply tanks requires characterization. At a minimum, oil in this tank is contaminated with DCPD, a non-RCRA-listed but dangerous chemical compound.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. Informal inspections are performed by Stearns Roger personnel as they perform their normal duties.

(2) Operating Procedures and Information. The operations in Building 321 include the maintenance of the boilers and the use of chemicals to clean the boilers. A National Pollution Discharge Elimination System (NPDES) has been issued that allows discharge of chemicals and residue inside the boilers to the drainage network and into the tributary of the Sand Creek Lateral.

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

Drip pans are used to collect small spills of TP2800 and lube oil. However, the dispenser drums are located near the grates of the drainage network. The drip pans catch small spills but cannot contain the contents of a full 55-gallon drum. The drums and drip pans should be moved to locations not directly adjacent to the drainage network. Sorbent material and hand tools are present inside Building 321 to cleanup small spills as they occur.

e. Spill History.

No reported spills have occurred at Building 321.

f. Potential Spills.

The largest container stored in Building 321 is a 55-gallon drum which represents the largest spill potential. The spill potential associated with these drums can be reduced if the dispenser drums are moved to areas away from the drainage network. The presence of drip pans ensures that small spills will be contained.

g. General Recommendations.

(1) Move the dispenser drums and drip pans to areas away from the drainage network.

5. Buildings 331 and 332, General Purpose Warehouse.

a. Physical Description.

(1) Buildings 331 and 332 are connected one-story structures with wood frame walls and concrete floors. The facility is used by Stearns Roger, an RMA contractor. A ventilated paint shop (12 feet by 15 feet.) is present inside the facility, and the following materials are stored:

mineral spirits paint thinner

carburetor cleaner

miscellaneous paints

(2) The paint shop is a placarded flammable storage area and the doorway has a short spill containment lip to ensure spills remain inside the paint shop. No floor drains are present inside the paint shop.

(3) Transformers which have been taken out of service are also stored in the facility. PCB-contaminated transformers are stored in a 15 feet by 30 feet. area which is surrounded by a 9-inch-high concrete berm. The containment area, coated with an epoxy resin-sealant, has a holding capacity of 2,000 gallons and is adequate to store PCBs. There are no drains inside the containment berm. Non-PCB-contaminated transformers may be stored either inside or outside the PCB containment berm. Leaking transformers are placed over drip pans to prevent the propagation of spilled dielectric fluid.

(4) New dielectric fluid (three 55-gallon drums) are stored outside the PCB containment berm. Sorbent materials (sweeping compounds and sorbent pigs) and an adequate number of hand tools to cleanup spills are also present.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. The PCB containment area and adjacent storage areas are inspected daily by Stearns Roger personnel. Leaking transformers are placed on drip pans as soon as they are discovered. The inspection frequency is adequate.

(2) Operating Procedures and Information.

(a) Only small amounts (usually less than 2 gallons) of thinner or mineral spirits are used inside the paint shop at any one time.

(b) Stearns Roger is responsible for the management of PCB-contaminated transformers at RMA; the locations of all such transformers are maintained on file by Stearns Roger personnel. All aspects of the PCB management program meet Toxic Substance Control Act requirements.

(c) The removal of waste oil is provided by a contractor and transformers no longer in use are disposed of through the DRMO.

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

The berm surrounding the PCB-contaminated transformers is adequate to contain the spills of all of the transformers present. The non-PCB-contaminated transformers and dielectric fluid are not provided with secondary containment but frequent inspections of the area ensure that leaks are cleaned up immediately. Spills of any material inside the facility will remain inside the structure and will be cleaned up as soon as they are discovered.

e. Spill History.

No reported spills have occurred at this site.

f. Potential Spills.

The potential for spills to occur from in-service PCB transformers and capacitors is generally small and may be attributed primarily to leaking gaskets and corroded housings. Leakages caused by collision and natural disasters are also possible, but do not occur as frequently.

g. General Recommendations.

None.

6. Buildings 368 and 372A, Gaseous Chlorine Storage Facilities.

a. Physical Description.

For locations of both buildings see the South Plants Area map in Appendix J (Plate III-B-J.10).

(1) Building 368 is the RMA swimming pool. Approximately, twelve 150-pound gas cylinders are stored at the facility between June and September.

(2) Building 372A is the Chlorinator Building. One 1-ton externally housed chlorine cylinder is located adjacent to Building 372A. The cylinder is replaced at intervals of approximately 18 months. The cylinder is located in a wooden shed which is subject to naturally occurring ventilation patterns. A gas mask is available at the building. In addition, self-contained breathing apparatus are available from the Fire Prevention Branch.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. The cylinders are inspected as they are unloaded from delivery trucks. Additional inspections of the valves and appurtenances are also performed after the cylinders are connected to their injection systems, and at least daily thereafter to determine chlorine usage.

(2) Operating Procedures and Information. The chlorine cylinders are replaced as needed but chlorine usage is relatively low at each facility. The only operations which take place at either facility are the unloading of new chlorine cylinders and the process of connecting the cylinders to their respective injection manifolds. Appropriate safety procedures are enforced. The chlorine is removed from Building 368 when the pool is nonoperational.

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

Gaseous chlorine has a density heavier than air and will escape from both facilities in the event that a chlorine spill occurs which is not responded to properly. The chlorine would exit the facilities and the spread of the chlorine would then be a function of the prevailing winds.

e. Spill History.

No reported spills/leaks have occurred at these sites.

f. Potential Spills.

The potential of a spill occurring at either facility will largely depend on the safety procedures used during the processes of unloading the cylinders and connecting them to their manifolds. Once the cylinders are in place and they are connected, the only way a spill could occur is if the injection piping appurtenances fail. Periodic inspections of the chlorine injection equipment will further reduce this spill potential. Response procedures for chlorine spills are discussed in Appendix B.

g. General Recommendations.

None.

7. Building 543, Maintenance Shop.

a. Physical Description.

The location of Building 543 is indicated on the map of the eastern portion of the South Plants Area (Plate III-B-J.11, Appendix J). Building 543 is the maintenance shop. Procedures in the shop involve using small quantities of lube oil to lubricate the gears on lathes and metal cutters. Solvents are also used in small quantities to remove excess oils and greases. The materials stored in Building 543 include the following:

1 55-gallon drum of trichloroethane, and

3 55-gallon drums of lube oil.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. Informal inspections are performed at Building 543 each day as personnel perform their duties.

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls. The building has a concrete floor and no floor drains are present. Sorbent material and hand tools are available to cleanup spills inside the shop.

(4) Security.

[Information Under Development]

d. Spill Containment Systems.

Spills inside Building 543 will remain inside the structure and will be cleaned up when detected. The dispenser drums inside Building 543 have drip pans which will contain small spills. Secondary containment is not required.

e. Spill History.

No reported spills have occurred at these facilities.

f. Potential Spills.

The largest container of POL stored or used in Building 543 is a 55-gallon drum. The possibility of a drum rupturing and reaching the environment is remote.

g. General Recommendations.

None.

8. Tanks 463D and 805, Hydrazine Blending and Storage Facility.

a. Physical Description.

Tanks 463D and 805 are part of an inactive hydrazine blending facility. The only structures which contain hydrazine (in trace concentrations) are ASTs 463D and 805. The volumes of the ASTs are 200,000 gallons for Tank 463D and 50,000 gallons for Tank 805. Hydrazine has not been blended in several years. Decontamination of the facility with STB has resulted in the generation of approximately 250,000 gallons of hydrazine contaminated wastewater which has been stored in Tanks 463D and 805. The facility is inactive except for the storage of wastewater in Tanks 463D and 805. No other operations are performed at this facility. Full individual and respiratory protective equipment is required to be worn while within the fenced areas which surround the ASTs.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. Inspections are performed biweekly by Directorate of Installation Services (DIS) personnel. Inspection records are kept in the DIS office.

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

Each tank is surround by an 8-foot high concrete berm which provides approximately 158,000 gallons of containment for Tank 463D and 57,000 gallons for Tank 805. The containment for Tank 463D is not adequate to contain the wastewater present in the tank. The containment for Tank 805 is adequate to contain the wastewater present in the tank. It is reported the vessels are in good condition. Each containment vessel has a drainage sump which has been sealed from the sanitary sewer system.

e. Spill History.

No reported spills have occurred from this facility.

f. Potential Spills.

The potential of a major spill reaching the environment is a function of the secondary containment vessels holding capacity for wastewater if one of the tanks ruptures for any reason. The largest anticipated spill could be approximately 42,000 gallons if Tank 463D ruptured; it could flow eastward towards First Creek via ditches north and south of the tank (see Plate III-B-J.12, Appendix J).

g. General Recommendations.

For Tank 463D, either reduce the volume of wastewater to an amount less than the containment capacity or provide additional containment adequate for the capacity of the tank.

9. Building 313, Laboratory.

a. Physical Description.

Building 313 is a single story structure located in the northwest quarter of Section 1 in the South Plants manufacturing complex (see Plate III-B-J.11, Appendix J). It measures 50 feet by 220.5 feet with an approximate floor

area of 11,025 square feet. The floor and foundation are concrete, the walls are tile with exterior brick pilasters supporting the gabled wood roof.

The interior of Building 313 consists of laboratories, storage rooms, locker rooms, balance rooms, library, and offices. The rooms are currently empty since the laboratories were moved to Buildings 741 and 743, with the exception of stored hazardous waste (room 114), a machine shop, and miscellaneous laboratory equipment. There is one employee, whose main function is to maintain and repair laboratory equipment, still working in Building 313. His office is in the area of the machine shop.

The analytical laboratories, Rooms 109, 113, and 114, each measure approximately 60 by 20 feet, with a small laboratory in Room 112 used for preparing laboratory standards. Rooms 104, 106, and 108 were originally the mechanical laboratory, the physical laboratory and sample room, respectively.

Current use of Building 313 includes hazardous waste storage, a laboratory maintenance/mechanical area, inorganic analysis, and personal office area. There is a small amount of hazardous waste stored in room 114.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

Containers of unknown, and incompatible hazardous wastes are stored together without separation devices.

[Additional Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security. Security for Building 313 is accomplished by locks on the exterior doors.

d. Spill Containment System.

(1) The Building 313 Laboratory hoods do not have a recognizable system of secondary containment for wastes stored.

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

(1) Conduct a chemical and physical analysis of stored hazardous wastes.

(2) Properly store ignitable and/or reactive wastes.

(3) Properly labeled stored hazardous wastes.

(4) Maintain inspection schedules and checklists.

(5) Proper storage practices of containers.

(6) Provide secondary containment for wastes stored under hoods.

(7) Provide a ventilation system with adequate air exchange.

10. Building 741, Laboratory.

a. Physical Description.

Building 741 is a three-story structure located in the northern half of Section 1, in the South Plants manufacturing complex (Plate III-B-J.11). The northern section of the building has only a single-story, while the southern end has second and third floors. The northern end of Building 741 has a brick structural frame while the three-story southern section has a concrete frame.

The interior of the northern laboratory area of Building 741, consists of laboratories, their associated storage areas, administrative offices, and computer area.

The laboratories/rooms are divided depending upon the analysis/activity that is performed, for example: Quality Control/Quality Assurance, Water Analysis Laboratory, computer area, etc.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Emergency response procedures for chemical agent spills are provided in Attachment A of the Contingency Plan (Volume II).

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security. The refrigerator storing the quality control/quality assurance standards for Army agents is kept locked at all times.

d. Spill Containment System.

Building 741 has no system of secondary containment for the outside storage of hazardous waste at the west end of the building or for the wastes stored inside Building 741.

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

(1) Properly label stored hazardous wastes.

(2) Maintain at the Building 741 laboratory the inspection schedules and checklists.

(3) Properly store the two 55-gallon drums containing hazardous waste soil samples that are located outside of Building 741.

(4) Provide proper secondary containment for hazardous wastes stored and around Building 741.

11. Building 743, Laboratory.

a. Physical Description.

Building 743 is a single story structure located in the northern half of Section 1, in the South Plants manufacturing complex (see Plate III-B-J.11). It is a brick and tile structure built in 1942 by the Army and measures 50 feet by 108 feet with an approximate floor area of 5400 square feet.

The interior of Building 743 consists of laboratories and their associated storage areas, including hazardous materials/waste storage areas. The laboratories/room are divided depending upon the type of analysis/activity that is performed, for example, inorganic analysis, gas chromatography/ mass spectroscopy, sample prep/extraction, hazardous materials storage, etc. Most of the laboratories have fume exhaust hoods associated with them.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

Containers of unknown, and incompatible hazardous wastes are stored together without separation devices.

[Additional Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security. Security for Building 743 is accomplished by locks on the exterior doors.

d. Spill Containment System.

The Building 743 laboratory does not have a consolidated system, with appropriate secondary containment, to store hazardous waste.

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

(1) Conduct a chemical and physical analysis of the stored hazardous wastes.

(2) Properly label stored hazardous wastes.

(3) Inspection schedules and checklists should be maintained at Building 743 .

(4) Proper storage should be provide for hazardous waste containers.

(5) Secondary containment should be provide for hazardous wastes storage areas.

(6) Waste compatibility with other stored wastes and containers type should be determined.

(7) Separate incompatible stored wastes.

(8) A ventilation system with adequate air exchange for situations when all the exhaust hoods are in operation should be provided.

(9) Sufficient accident prevention equipment such as automatic sprinklers should be provided for in case of hazardous or emergency situations.

(10) Provide adequate volume or water pressure for emergency situations.

12. Building 451, Shell Hazardous Waste Storage Warehouse.

a. Physical Description.

Building 451 is located in the south-central portion of the South Plants Area (Plate III-B-J.11). It is operated by Morrison-Knudsen Environmental Services for the Shell Oil Company. The structure contains drummed liquid and solid hazardous waste accumulated by Shell and its contractors during investigative and remedial activity at RMA associated with the CERCLA cleanup of the Arsenal.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are currently under revision and will provided in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

[Information Under Development]

13. South Plants Liquid Waste Treatment Facility.

a. Physical Description.

The existing treatment system in the South Plants Area consists of a 170,000 gallon storage tank, a 24-inch diameter activated carbon column, an 8-inch diameter activated alumina column, a small include cartridge filter, and a small air stripping system. The activated carbon system is rated at approximately 5 gallons per minute while the air stripper unit is rated at 10 gallons per minute. In operation, the waste water is fed from the 170,000 gallon storage tank through the filter to the activated carbon and activated alumina columns. The treated water then flows to a 10,000 gallon storage tank which is part of the stripping system. When the small storage tank is full, the air stripper is started and runs until the 10,000 gallon tank is emptied.

The South Plants Liquid Waste Treatment Facility treats waste water from laboratories (Buildings 313, 741, and 743), from the pesticides/herbicides shop in Building 742, and from the decontamination pad. The treated waste water is discharged to the sanitary sewer for additional treatment at the RMA Sewage Treatment Plant. Spent activated carbon from the South Plants is combined with spent activated carbon from the Northwest Boundary Groundwater Treatment System for off-post disposal at a recycling plant.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

[Information Under Development]

14. Building 883, Warehouse.

a. Physical Description.

Building 883 is being used to store 66 oversized recovery drums that have been stenciled with either "waste oil", "solid brine", "fuel oil & gravel", or "dye congo red". The waste drums were found to be leak-free, clean, and neatly arranged. Although not stored in rows, the drums were readily accessible along the perimeter walls of the building. Because of the bunker design of the structure, the temperature inside was moderate. No corrosion was in evidence on any of the drums, nor were there any odors within the building. All the drums were sealed and without visible leakage.

An inventory is available of the 66 overpack containers. The inventory clearly lists identification numbers and the general contents of the containers as referenced above. An analysis of the materials in the containers was conducted in July 1986. The results indicated that "for all drums at B883" the "GB and H" analyses were less than the detectable limits. Several drums were noted to contain hydrocarbons, alcohols, aromatics, and nitrogenous organics. Sample notes also indicated the presence of aromatic hydrocarbons and one drum with a "black liquid with tetrachloroethylene." The report of the analyses indicates that the only final disposal method is incineration.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development]

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security. The building is locked and accessed by means of a key available through the PMRMA Law Enforcement and Security Branch.

d. Spill Containment System.

A secondary containment system is not in place for the containers stored in Building 883.

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

(1) Inspection procedures should be developed.

(2) The building should be supplied with emergency preparedness equipment.

(3) Secondary containment should be provided.

(4) A determination of waste compatibility should be done.

15. South Plants Decontamination Area.

a. Physical Description.

The South Plants Decontamination Area (SPDA) has in the past, and is currently used by several contractors to decontaminate drums, equipment, and vehicles working on nearly all portions of RMA. RMA is in the process of upgrading the SPDA to improve operations.

The SPDA, located in Section 36 along 7th Avenue, features a bermed concrete pad with the approximate dimensions of 10-foot by 25-foot used for decontaminating drums, equipment, and vehicles. This concrete pad is sloped to a shallow sump. Sediment is trapped in this shallow sump and supernatant liquid overflows into two 12-foot-deep sumps. Sediment and personal protective equipment (PPE) are drummed and temporarily stored at the SPDA. This sump is pumped as needed into one of three high-density polyethylene (HDPE) holding tanks with a capacity of 10,000 gallons. These tanks are located in a separate bermed area. Other liquid waste generated by contractors is also placed in one of these holding tanks.

The wastes are managed at the SPDA fall into one of three general categories:

- Drummed sludge generated from the decontamination of field equipment;

- Aqueous based liquids from decontamination and well purging operations; and
- PPE consisting of used protective clothing, respirator cartridges, etc., generated during Remedial Investigation/Feasibility Study (RI/FS) and Interim Response Action (IRA) activities at RMA.

Potential contamination levels in the wastes listed above may range from heavily contaminated, depending upon the area of origin, to only slightly contaminated or noncontaminated, as is most likely for PPE and the waste water. Refer to Section 5.2.2 of the Weston Contingency Plan (Weston, 1990b) for a list of potential contaminants.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

[Information Under Development]

16. Hydrazine Wastewater Treatment Facility

a. Physical Description.

[Information Under Development]

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

[Information Under Development]

17. South Plants Decontamination Pad

a. Physical Description.

The South Plants Decontamination Pad (SPDP) was constructed to facilitate decontamination of vehicles, drilling/sampling equipment, containers, and other equipment necessary in field investigations at RMA. Waste generated under the IRAs such as PPE, soil cuttings, and purge water are also collected and transported to this facility for temporary storage. The facility is used by several on-post contractors, and Westin Services, Inc. manages the day-to-day operations.

The SPDP, located in Section 36 along 7th Avenue, has previously completed Phase I construction for storage of decon-wastewaters and collection of potential hazardous purge water from well development. Wastewater generated from decontamination of equipment is transferred into 1 of 3 (10,000-gallon) high-density polyethylene storage tanks. Contractors' field equipment is washed on a concrete pad adjacent to the storage tanks; dimensions of the wash pad are 12 by 25 feet. Wash water and sediments are flushed to a sloped concrete sump in which solids are allowed to settle. Phase II construction of the wash pad will feature two 12-ft-deep sumps to add capacity for catching wash water and sediments. Currently, the sump wastewater is transferred to the appropriate storage tank with portable pumps. Sediments and sludge are removed from the sump on an as needed basis. Water generated from monitoring well

activities are transported in portable tanks or in drums by the contractors. The purge water is off-loaded into one of two (2500 gallons) high-density polyethylene storage tanks. These tanks are located within the same containment area as the three decon-wastewater tanks.

All waste received or generated at the decon-area is either containerized or placed in the bulk storage tanks. These wastes are sampled by Westin Service, Inc. and the samples submitted to the PMRMA laboratory with a waste profile sheet for chemical analysis. All bulk wastewaters are transported and treated at the south plant treatment facility. All containers of PPE and soil wastes (free of liquid) are labeled and transferred with a chain-of-custody sheet to the central waste storage facility.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills

[Information Under Development]

g. General Recommendations.

[Information Under Development]

BASIN F AREA

A. GENERAL DESCRIPTION

The location of the Basin F Area is shown on the General Site Map (Appendix J, Plate III-B-J.2). Specific areas identified as potential spill sites are shown in greater detail on Plate III-B-J.7 (Appendix J). Sites identified within the Basin F Area as potential spill sites include Tanks 815, 816 and 817, Pond A and the Wastepile. Each of these sites is described further along with responses and recommendations in the following section.

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. Tanks 815, 816 and 817.

   a. Physical Description.

      (1) Tanks 815, 816 and 817 are aboveground tanks located northeast of Basin F in the northeast quarter of Section 26. The tanks were constructed in 1987-1988. Each has an inside diameter of 78.5 feet, a sidewall height of 40 feet and a nominal capacity of 1,333,000 gallons. They are constructed of welded steel plate sides and double bottoms and have aluminum roofs. Polyethylene material lines each tank's interior and a cathodic protection system is installed with the tanks. Valves are provided on the tank exteriors which can be used to detect any liquids between the tank interior and the HDPE liner. The tanks are elevated on concrete foundations equipped with leak detection for the bottom of the tank.

      (2). The three Basin F tanks are being used to temporarily store liquids from Basin F pending a determination of final disposition. The liquid waste is a complex mixture and is the result of past Army tenant operations. Liquids were transferred to the tanks on a batch basis and consequently no overfill alarms or shut off devices are present. Liquid levels are checked regularly by the contractor responsible for operation and maintenance. Under current plans, no additional liquids will be added to the tanks.

   b. Spill Response.

      (1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

      (2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

      (3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

(1) Inspection Procedures. The tanks will be inspected regularly by Buildings, Grounds and Utilities Branch personnel; the inspection records will be kept in their files. Inspections will be conducted in accordance with SOPs 411 and 431, Appendix A of the Basin F Interim Response Action Operational/Maintenance Manual and Inspection Procedures (Weston, 1990a).

(2) Operating Procedures and Information. Operation and maintenance of the tank farm will be conducted as described in SOPs 411, 451.1, 451.2, 451.3, 451.4, 461, 471, and 481 located in Appendix A of the Basin F Interim Response Action Operational/Maintenance Manual and Inspection Procedures (Weston, 1990a).

(3) Controls.

[Information Under Development]

(4) Security. The Basin F Tank Farm area remains locked at all times unless Weston personnel are working in the area, as authorized by the Daily Operations Manager (DOM) (Weston, 1990a).

d. Spill Containment System.

A secondary containment liner surrounds the three tanks. The liner is constructed of a three foot high earth berm, covered with 100-mil, high-density polyethylene liner, and secured with one foot of clay. As-built drawings show that the polyethylene liner covers the entire bermed area with the exception of the tank foundations. A 7-foot chainlink fence surrounds the bermed area, the gate of which is kept locked. The volume of the containment is adequate to contain the capacity of any tank plus an appropriate allowance for accumulated precipitation.

e. Spill History.

No spills have occurred at these tanks.

f. Potential Spills.

The largest potential spill is from the rupture of a tank (1,333,000 gallons). The volume of the containment berm is adequate to contain such a spill plus accumulated precipitation. In the case of a subsequent failure of the containment berm, flow would be towards the north (see Plate III-B-J.8).

g. General Recommendations.

None.

2. Pond A.

a. Physical Description.

Pond A is a double-lined holding pond, with a capacity of 8.5 million gallons, which is storing approximately 5.5 million gallons of liquid waste removed from Basin F during the Interim Response Action. The pond is located north of the former Basin site, and west of the tank farm (Plate III-B-J.7).

The pond liners meet the requirements specified in 40 CFR section 264.221 (a). The liners consist of the following (from the bottom up):

- compacted clay
- 60-mil high-density polyethylene liner
- 200-mil high-density polyethylene geo-net (and lead detection sump)
- 60-mil high-density polyethylene liner

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

(1) Inspection Procedures. Inspections will be conducted in accordance with SOPs 412 and 432 located in Appendix A of the Basin F Interim Response Action Operational/Maintenance Manual and Inspection Procedures (Weston, 1990a).

(2) Operating Procedures and Information. Operation and maintenance of Pond A will be conducted pursuant to SOPs 412, 452.1, 452.2, 452.3, 452.4, 461, 463, 472, and 482 located in Appendix D of the Basin F Interim Response Action Operational/Maintenance Manual and Inspection Procedures (Weston, 1990a).

(3) Controls. The geo-net drains to a sump with a riser pipe which serves as leak detection. In addition, Pond A has a white hypalon cover with four one-way vents.

(4) Security. Pond A (and Pond B) are surrounded by a chain-link fence, the gates to which are kept locked.

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

Alternative storage and/or treatment for the rainfall water is needed.

3. Waste Pile.

a. Physical Description.

The Basin F capped waste pile is included in the Basin F Interim Response Action. The capped waste pile is used to store sludges removed from the bottom of Basin F. The design capacity of the capped waste pile is 605,000 cubic yards. The capped waste pile contains 488,000 cubic yards.

A multi-layer liner exists below the capped waste pile. The liner consists of the following (from the bottom up):

- compacted clay
- 60-mil HDPE
- 200-mil HDPE geo-net (and leak detection sump)
- 60-mil HDPE liner
- 200-mil HDPE geo-net (and leachate collection sump)
- 200-mil geo-synthetic fabric

The top geo-net drains to a sump which serves as leachate collection. The bottom geo-net drains to a second sump which provides detection of leaks from the top 60-mil liner. The sludges from Basin F were placed on the geosynthetic fabric. A cap was placed on top of the capped waste pile providing protection from wind dispersion and precipitation. The cap consists of the following (from the bottom up):

- 12 inches of compacted clay
- geo-synthetic fabric
- 200-mil HDPE geo-net (to collect rising condensate)
- 60-mil HDPE liner
- 200-mil HDPE geo-net
- geo-synthetic fabric

- 2 feet of compacted clay
- 6 inches of top soil (seeded with grasses and forbs)

Directly north of the capped waste pile is a surface impoundment which contains only an accumulation of precipitation.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

(1) Inspection Procedures. Inspections will be conducted in accordance with SOPs 413, 433, Appendix A of Basin F Interim Response Action Operational/Maintenance Manual and Inspection Procedures (Weston, 1990a).

(2) Operating Procedures and Information. Operation and maintenance of the Wastepile will be conducted pursuant to SOPs 413, 453.1, 453.2, 453.3, 463, 473, and 483 located in Appendix A of the Basin F Interim Response Action Operational/Maintenance Manual and Inspection Procedures (Weston, 1990a).

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

[Information Under Development]

OLD TOXIC STORAGE YARD

A. GENERAL DESCRIPTION

The Old Toxic Storage Yard is located in the southern portion of RMA. Plots 1 and 28 have been identified as potential spill sites. Descriptions of the sites, potential spill hazards, and responses are detailed further in the following section.

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. Plots 1 and 28.

a. Physical Description.

The Toxic Storage Yard is located in Section 31.

Plot 28 provides storage for contaminated soil collected from mustard (H) spills, and H-contaminated valves, machine parts, and rubber seals. Also included in Plot 28 are drums of pelletized sodium hydroxide, Lewisite stored in an 85-gallon drums, and "weteye" shipping containers. The wastes are stored in 55-gallon drums, 85-gallon overpacks. These drums are stored on pallets and are located inside of an open metal shed. Approximately 94 drums are used to store the waste materials in the Plot 28 shed; and over 40 weteye shipping containers are included in the inventory.

Plot 1 is also used for storage of materials from various sources in the old toxic storage yard. Most of the waste materials are from Demil operations; the waste includes soot from a deactivation furnace, DDT-contaminated waste, hydrazine facility trash, inorganic arsenic, contaminated trash, bomb casings and spare machine parts. Also included in the waste materials are GB-contaminated overgarments, filter charcoal, washed rubber goods from Building 315 that were indicated to be used in GB/H operations, protective overgarments, and contaminated trash. These waste materials are stored in 55-gallon drums, on pallets, and in two open metal sheds. The bomb casings are stored in approximately 20 boxes. Approximately 1044 55-gallon drums are located in the two storage sheds, according to an inventory.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures.

[Information Under Development].

(2) Operating Procedures and Information.

[Information Under Development].

(3) Controls.

[Information Under Development].

(4) Security. Access to the old toxic storage yard is controlled and security procedures are in place to obtain keys for access to the yard; thus unknowing or unauthorized entry into the yard is prevented by a fence completely surrounding the facility.

d. Spill Containment System.

No containment system is in place for the containers stored in plot 1 or plot 28 of the old toxic storage yard.

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

(1) The compatibility of the waste stored should be assessed.

(2) Secondary containment for the containers stored in plot 1 and plot 28 should be provided.

(3) Containers should be inspected.

CENTRAL WASTE-HANDLING AREA

A. GENERAL DESCRIPTION

The Central Waste-Handling Area (CWHA) was developed to manage and store the containerized wastes generated from the RI/FS activities at RMA. The CWHA consists of nine warehouses located along December 7th Avenue and E Street at RMA (see Plate III-B-J.14). The CWHA building numbers are 785 (east, center, and west bays), 786, 787, 788, 791, 794, 796, 797, and 798.

The type of containerized wastes managed at the CWHA fall into one of seven general categories:

- Soil generated during site investigations at RMA;
- Sludge (free liquid with six inches or more of settled solids) generated from the decontamination of field equipment;
- Non-aqueous liquid wastes such as used oil or water/oil mixtures;
- PPE consisting of used protective clothing, respirator cartridges, etc., generated during environmental investigations at RMA;
- Laboratory wastes generated from field or laboratory sampling and analysis;
- Miscellaneous drummed solids (e.g., contaminated metal, or absorption media); and
- Trash or contaminated debris generated during field operations.

Potential contamination levels in the wastes listed above may range from heavily contaminated, as it is possible for some soils or sludges depending upon their origin, to only slightly contaminated or noncontaminated, as is most likely for PPE. Refer to Section 5.2.2 of the Weston, Inc. Contingency Plan for a list of potential contaminants (Weston, 1990b).

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. Building 785, Hazardous Waste Containerization and Storage Area.

   a. Physical Description.

      Building 785 is one-story concrete block building that is 60 feet wide by 480 feet wide by 160 feet long. The warehouse was originally built as three connected warehouses that were designated as Building 783, 784 and 785; the building is currently designated as 785 (East, Center, and West).

      Building 785-East is being used for storage of contained PPE and trash only. This area is also the drum acceptance area. Building 785-Center is a support building for operations equipment. This area is also the drum issuing area. Building 785-West is the RMA storage area for non-hazardous wastes (Weston, 1990b).

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

(1) Inspection Procedures. Weekly inspections of the building are conducted by Weston Services.

(2) Operating Procedures and Information. Area is kept clean of debris and sweepings.

(3) Controls.

[Information Under Development]

(4) Security.

[Information Under Development]

d. Spill Containment System.

No containment system in place for the containers stored in Building 785 east and Center.

e. Spill History.

[Information Under Development]

f. Potential Spills.

Implementation of the Contingency Plan at the CWHA can result from various events: container failure; equipment failure; breach of containment structures; effects of external forces; or human exposure.

CONTAINMENT FAILURE OR EXTERNAL FORCES

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Minor container leakage or spill
Fire/Explosion	Major release of hazardous substances
Containment Failure	Major or minor container(s) spill
Tornado, High Wind	Building failure, major spill
Vandalism	Major or minor container(s) spill

HUMAN EXPOSURE

EVENT	FORESEEABLE CONSEQUENCE
Container/ Containment Failure	Personnel exposure to hazardous substances
Worker Mishap or Accident	Personnel exposure to hazardous substances

For purposes of the CWHA operation, a minor release is considered to involve less than 25 gallons of material or an area less than 5 feet in diameter. A major release involves hazardous materials that have leaked or spilled in a quantity greater than or equal to 25 gallons or involved an area equal to or greater than 5 feet in diameter (Weston, 1990b).

g. General Recommendations.

(1) Recommend to analyze stored wastes for chemical and physical characteristics.

(2) Recommend to determine waste compatibility of stored wastes and their containers and store separately incompatible wastes.

(3) Recommend to provide secondary containment of stored materials.

(4) Recommend to provide an internal communications system to summon an emergency response.

(5) Recommend to provide spill control equipment and an adequate supply of water for emergencies.

2. Building 786, Hazardous Waste Containerization and Storage Area.

a. Physical Description.

Building 786 is used for storage of contaminated liquid and solid laboratory wastes. Also stored in this building is possibly contaminated ethylene glycol from Harding-Lawson Associates hydrazine operation (Weston, 1990b).

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

Implementation of the Contingency Plan at the CWHA can result from various events including container failure, equipment failure, breach of containment structures, effects of external forces, or human exposure.

CONTAINMENT FAILURE OR EXTERNAL FORCES

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Minor container leakage or spill
Fire/Explosion	Major release of hazardous substances
Containment Failure	Major or minor container(s) spill
Tornado, High Wind	Building failure, major spill
Vandalism	Major or minor container(s) spill

HUMAN EXPOSURE

EVENT	FORESEEABLE CONSEQUENCE
Container/ Containment Failure	Personnel exposure to hazardous substances
Worker Mishap or Accident	Personnel exposure to hazardous substances

For purposes of the CWHA operation, a minor release is considered to involve less than 25 gallons of material or an area less than 5 feet in diameter. A major release involves hazardous materials that have leaked or spilled in a quantify greater than or equal to 25 gallons or involved an area equal to or greater than 5 feet in diameter (Weston, 1990b).

g. General Recommendations.

[Information Under Development]

3. Building 787, Hazardous Waste Containerization and Storage Area

a. Physical Description.

Building 787 is used for the storage of contaminated PPE, trash and dry soil, as well as contaminated well casing and concrete.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

Implementation of the Contingency Plan at the CWHA can result from various events: container failure, equipment failure, breach of containment structures, effects of external forces, or human exposure.

CONTAINMENT FAILURE OR EXTERNAL FORCES

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Minor container leakage or spill
Fire/Explosion	Major release of hazardous substances
Containment Failure	Major or minor container(s) spill
Tornado, High Wind	Building failure, major spill
Vandalism	Major or minor container(s) spill

HUMAN EXPOSURE

EVENT	FORESEEABLE CONSEQUENCE
Container/ Containment Failure	Personnel exposure to hazardous substances
Worker Mishap or Accident	Personnel exposure to hazardous substances

For purposes of the CWHA operation, a minor release is considered to involve less than 25 gallons of material or an area less than 5 feet in diameter. A major release involves hazardous materials that have leaked

or spilled in a quantity greater than or equal to 25 gallons or involved an area equal to or greater than 5 feet in diameter (Weston, 1990b).

g. General Recommendations.

(1) An internal communications device should be provided at the site to summon emergency response assistance.

(2) Building should be supplied with fire control equipment, spill control equipment, and decontamination equipment.

(3) A supply of water with adequate volume for fire protection should be provided.

4. Building 788, Hazardous Waste Containerization and Storage Area.

a. Physical Description.

Building 788 is a one-story concrete block structure that is 60 feet wide by 160 feet long with access to the building by overhead doors on the north and south side. The building is being used for storage of approximately 90 drums of Basin F wastes which include soils, sludges, PPE, trash, and miscellaneous solids (Weston, 1990b).

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

(1) Ninety Basin F waste containers are stored in a secondary containment structure.

(2) Wastes other than Basin F waste, are not stored within a secondary containment structure.

e. Spill History.

[Information Under Development]

f. Potential Spills.

Implementation of the Contingency Plan at the CWHA can result from various events: container failure; equipment failure; breach of containment structures; effects of external forces; or human exposure.

CONTAINMENT FAILURE OR EXTERNAL FORCES

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Minor container leakage or spill
Fire/Explosion	Major release of hazardous substances
Containment Failure	Major or minor container(s) spill
Tornado, High Wind	Building failure, major spill
Vandalism	Major or minor container(s) spill

HUMAN EXPOSURE

EVENT	FORESEEABLE CONSEQUENCE
Container/ Containment Failure	Personnel exposure to hazardous substances
Worker Mishap or Accident	Personnel exposure to hazardous substances

For purposes of the CWHA operation, a minor release is considered to involve less than 25 gallons of material or an area less than 5 feet in diameter. A major release involves hazardous materials that have leaked or spilled in a quantify greater than or equal to 25 gallons or involved an area equal to or greater than 5 feet in diameter (Weston, 1990b).

g. General Recommendations.

(1) Analyze stored wastes for chemical and physical characteristics.

(2) Determine waste compatibility of stored wastes and their containers and store separately incompatible wastes.

(3) Provide secondary containment of stored materials.

(4) Provide spill and fire control equipment and an adequate supply of water for emergencies.

(5) Provide an internal communication system to summon an emergency response.

(6) Properly store containers.

(7) Post signs at the entrances "Danger - Unauthorized Personnel Keep Out" that are visible at all times.

(8) Maintain complete inspection reports.

5. Building 791, Hazardous Waste Containerization and Storage Area.

a. Physical Description.

Building 791 is used for storage of contaminated sludge and overpacked drums (Weston, 1990b).

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

Implementation of the Contingency Plan at the CWHA can result from various events: container failure, equipment failure, breach of containment structures, effects of external forces, or human exposure.

CONTAINMENT FAILURE OR EXTERNAL FORCES

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Minor container leakage or spill
Fire/Explosion	Major release of hazardous substances
Containment Failure	Major or minor container(s) spill
Tornado, High Wind	Building failure, major spill
Vandalism	Major or minor container(s) spill

HUMAN EXPOSURE

EVENT	FORESEEABLE CONSEQUENCE
Container/ Containment Failure	Personnel exposure to hazardous substances
Worker Mishap or Accident	Personnel exposure to hazardous substances

For purposes of the CWHA operation, a minor release is considered to involve less than 25 gallons of material or an area less than 5 feet in diameter. A major release involves hazardous materials that have leaked or spilled in a quantity greater than or equal to 25 gallons or involved an area equal to or greater than 5 feet in diameter (Weston, 1990b).

g. General Recommendations.

[Information Under Development]

6. Building 794, Hazardous Waste Containerization and Storage Area.

a. Physical Description.

Building 794 is a single-story, concrete block structure that is 60 feet wide by 160 feet long. The building is used to store approximately 90 drums of Basin F sludge and drums indicated to be filled with "soils". These drums were reported to be previously stored in Building 785 Center.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

(1) Inspection Procedures. Weekly inspections.

(2) Operating Procedures and Information.

[Information Under Development]

(3) Controls.

[Information Under Development]

(4) Security. Doors to warehouse are kept locked.

d. Spill Containment System.

A secondary containment system is not in place.

e. Spill History.

[Information Under Development]

f. Potential Spills.

Implementation of the Contingency Plan at the CWHA can result from various events: container failure, equipment failure, breach of containment structures, effects of external forces, or human exposure.

CONTAINMENT FAILURE OR EXTERNAL FORCES

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Minor container leakage or spill
Fire/Explosion	Major release of hazardous substances
Containment Failure	Major or minor container(s) spill
Tornado, High Wind	Building failure, major spill
Vandalism	Major or minor container(s) spill

HUMAN EXPOSURE

EVENT	FORESEEABLE CONSEQUENCE
Container/ Containment Failure	Personnel exposure to hazardous substances
Worker Mishap or Accident	Personnel exposure to hazardous substances

For purposes of the CWHA operation, a minor release is considered to involve less than 25 gallons of material or an area less than 5 feet in diameter. A major release involves hazardous materials that have leaked or spilled in a quantify greater than or equal to 25 gallons or involved an area equal to or greater than 5 feet in diameter (Weston, 1990b).

g. General Recommendations.

(1) A detailed chemical and physical analysis of hazardous wastes stored in Building 794 should be conducted.

(2) Evaluated the compatibility of the waste with containers and other wastes/materials.

(3) Secondary containment should be provided for the containers being stored.

(4) Spill and fire control equipment and an adequate supply of water for emergencies should be provided.

(5) An internal communication system to summon an emergency response should be provided.

(6) Containers should be stored properly.

(7) Completed inspection reports should be maintained.

7. Building 796, Hazardous Waste Containerization and Storage Area.

a. Physical Description.

Building 796 is used for the storage of contaminated sludges (Weston, 1990b).

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

The containment system has gaps which could hinder the cleanup of spills or leaks. The containment system consists of 3 layers of 10-mil plastic overlying a perimeter berm of railroad ties. Where the strips of liner overlap they are adjoined with aluminum duct tape. Container storage areas which store liquid wastes for greater than 90 days, must have a containment system that includes:

- A base that is impervious and free of cracks or gaps so that accumulated liquids can be detected and removed. The base must be designed to allow collection and removal of accumulated liquids.

- The containment system must have sufficient capacity to contain 10 percent of the volume of the containers (for containers storing free liquids). Run-on to the containment system must be prevented unless sufficient excess containment capacity is available to contain the accumulated liquids. Procedures must be in place to provide timely removal of accumulated liquids to prevent overflow of the containment system.

- Areas storing containers that do not contain free liquids may only require a sloped storage area (or allowance for collection of accumulated liquids), or provisions for elevation or protection of containers from accumulated liquids [Wastes identified as F020, F021, F022, F023, F026 & F027 must have complete containment specified in 40 CFR 264.175 (b) even if they do not contain free liquids.]

e. Spill History.

[Information Under Development]

f. Potential Spills.

Implementation of the Contingency Plan at the CWHA can result from various events: container failure, equipment failure, breach of containment structures, effects of external forces, or human exposure.

CONTAINMENT FAILURE OR EXTERNAL FORCES

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Minor container leakage or spill
Fire/Explosion	Major release of hazardous substances
Containment Failure	Major or minor container(s) spill
Tornado, High Wind	Building failure, major spill
Vandalism	Major or minor container(s) spill

HUMAN EXPOSURE

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Personnel exposure to hazardous substances
Worker Mishap or Accident	Personnel exposure to hazardous substances

For purposes of the CWHA operation, a minor release is considered to involve less than 25 gallons of material or an area less than 5 feet in diameter. A major release involves hazardous materials that have leaked or spilled in a quantify greater than or equal to 25 gallons or involved an area equal to or greater than 5 feet in diameter (Weston, 1990b).

g. General Recommendations.

(1) Evaluate the compatibility of wastes with containers and other wastes/materials; ignitable/reactive wastes.

(2) Operators should inspect the containers weekly on a regular basis.

(3) Secondary containment should be provided for the containers being stored.

(4) PMRMA should provide the necessary personnel training.

(5) Weston staff members should be supplied with a copy of the site-wide contingency plan.

(6) An adequate supply of water should be provided for emergencies.

(7) The secondary containment system should be repaired and/or updated to provide the necessary containment.

8. Building 797, Hazardous Waste Containerization and Storage Area.

a. Physical Description.

Building 797 is used for the storage of contaminated PPE and trash.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

No secondary containment system is in place.

e. Spill History.

[Information Under Development]

f. Potential Spills.

Implementation of the Contingency Plan at the CWHA can result from various events: container failure, equipment failure, breach of containment structures, effects of external forces, or human exposure.

CONTAINMENT FAILURE OR EXTERNAL FORCES

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Minor container leakage or spill
Fire/Explosion	Major release of hazardous substances
Containment Failure	Major or minor container(s) spill
Tornado, High Wind	Building failure, major spill
Vandalism	Major or minor container(s) spill

HUMAN EXPOSURE

EVENT	FORESEEABLE CONSEQUENCE
Container/ Containment Failure	Personnel exposure to hazardous substances
Worker Mishap or Accident	Personnel exposure to hazardous substances

For purposes of the CWHA operation, a minor release is considered to involve less than 25 gallons of material or an area less than 5 feet in diameter. A major release involves hazardous materials that have leaked or spilled in a quantity greater than or equal to 25 gallons or involved an area equal to or greater than 5 feet in diameter (Weston, 1990b).

g. General Recommendations.

(1) Evaluate the compatibility of wastes with containers and other wastes/materials; ignitable/reactive wastes.

(2) Operators should inspect the containers weekly on a regular basis.

(3) Secondary containment should be provided for the containers being stored.

(4) PMRMA should provide the necessary personnel training.

(5) Weston staff members should be supplied with a copy of the site-wide contingency plan.

(6) An adequate supply of water should be provided for emergencies.

9. Building 798, Hazardous Waste Containerization and Storage Area.

a. Physical Description.

Building 798 is used for the storage of contaminated dry soil (Weston, 1990b).

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

(4) Contractor contingency plans are under revision and will be included in Volume IV at a later date.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

Implementation of the Contingency Plan at the CWHA can result from various events: container failure, equipment failure, breach of containment structures, effects of external forces, or human exposure.

CONTAINMENT FAILURE OR EXTERNAL FORCES

EVENT	FORESEEABLE CONSEQUENCE
Container Failure	Minor container leakage or spill
Fire/Explosion	Major release of hazardous substances
Containment Failure	Major or minor container(s) spill
Tornado, High Wind	Building failure, major spill
Vandalism	Major or minor container(s) spill

HUMAN EXPOSURE

EVENT	FORESEEABLE CONSEQUENCE
Container/ Containment Failure	Personnel exposure to hazardous substances
Worker Mishap or Accident	Personnel exposure to hazardous substances

For purposes of the CWHA operation, a minor release is considered to involve less than 25 gallons of material or an area less than 5 feet in diameter. A major release involves hazardous materials that have leaked or spilled in a quantify greater than or equal to 25 gallons or involved an area equal to or greater than 5 feet in diameter (Weston, 1990b).

g. General Recommendations.

(1) Compatibility of the wastes stored should be assessed.

(2) Testing and maintenance of communication or alarm systems, spill control equipment, and decontamination equipment to ensure its proper operation in time of emergency should be done.

(3) Compatibility of the hazardous wastes being stored with their containers should be evaluated.

(4) Weston staff members should be supplied with a copy of the facility-wide contingency plan.

(5) Facility operators should be trained as described in Appendix F.

(6) To provide adequate volume or water supply for hazardous or emergency situations.

BOUNDARY SYSTEMS

A. GENERAL DESCRIPTION

The boundary systems identified as potential spill sites include the North Boundary Ground Water Intercept System and the Northwest Boundary Ground Water Intercept System. The relative location of these sites on the RMA is shown by the General Site Map (Appendix J, Plate B-III-J.2) and detailed further on the North Boundary System Map (Plate B-III-J.7) and the Northwest Boundary System Map (Plate B-III-J.15). Each of the boundary systems as potential spill sites is described in the following section.

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. North Boundary System Containment and Treatment Facility.

a. Physical Description.

The North Boundary System consists of a series of dewatering wells, a soil-bentonite barrier, a series of recharge wells and recharge trenches, and a treatment plant. The purpose of the North Boundary System is to contain contaminated ground water, to remove contaminants and to reinject the cleaned ground water north of the soil-bentonite barrier. The primary treatment operation consists of three upflow pulsed-pressure granular-activated-carbon (GAC) adsorbers.

Associated with the carbon adsorption system are influent storage sumps, an effluent storage sump, prefilters, effluent filters, two blow casings, a waste water sump, a spent carbon storage tank, and a fresh carbon storage tank. All of these operations, except the fresh carbon storage tank and the two blow casings, involve direct contact with the ground water which is being treated.

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

(1) Inspection Procedures. The accumulation point area will be inspected weekly for all general conditions, including checking for leaks, corrosion to containers, and any needed maintenance to the facility.

(2) Operating Procedures and Information. The floor and equipment are kept clean and the building is basically free of nonessential equipment and clutter.

(3) Controls. The North Boundary System sumps are equipped with overfill protection. The influent sumps have high and low level monitoring which controls the dewatering well sumps. The waste water sump has a high level automatic shutoff set at about three feet below the overflow level. The waste water high level shutoff is intended to serve as a fail safe for leaks in the treatment system.

(4) Security. The North Boundary influent, effluent and waste water sumps are external to Building 808. The sumps are not protected by a fence or other barrier. Plant security checks Building 808 periodically but does not provide continuous monitoring of the sumps. Building 808 is locked after hours.

d. Spill Containment System.

The North Boundary System influent, effluent and water sumps do not have any secondary containment. The sumps are constructed of unlined concrete.

The carbon adsorption tanks, the spent carbon storage tank and the associated piping are provided with some secondary containment by Building 808. The secondary containment provided by Building 808 is not complete because of breaks in the floor berm at doorways.

e. Spill History.

No information is available regarding past spills.

f. Potential Spills

Specifically, a leak in the treatment building will discharge through the floor drains to the waste water sump. The waste water sump will fill until the high level float is triggered and then the flow into the treatment system will automatically shutoff.

Spent carbon accumulates at two locations in the North Boundary System: the spent carbon storage tank and the waste water sump. Spills of spent carbon and waste water could occur during the removal of spent carbon from the waste water sump and during transfer of spent carbon from the storage tank to a truck for offsite shipment.

Drain water from the transporter truck spills onto the soil during transfer of spent carbon from the storage tank. Removal of spent carbon from the waste water sump involves entering the sump and shovelling spent carbon into 55-gallon containers. The spent carbon is then emptied into hoppers to await pick-up and shipment offsite. The storage of spent carbon in open

hoppers, as well as the drum transfer operation, results in wind blown losses and spills of the spent carbon.

g. General Recommendations.

(1) The integrity of the existing tank systems should be assessed.

(2) The influent, effluent and water sumps should have secondary containment.

(3) The secondary containment provided by Building 808 should be repaired.

2. Northwest Boundary Containment and Treatment Facility.

a. Physical Description.

The Northwest Boundary System is similar in design and purpose to the North Boundary System. The Northwest Boundary System consists of a series of dewatering wells, a soil-bentonite barrier, a series of recharge wells, and a treatment plant. The Northwest Boundary System does not include a recharge trench. The purpose of the Northwest Boundary System is to contain contaminated ground water, to remove contaminants and to reinject the cleaned ground water northwest of the soil-bentonite barrier.

Associated with the carbon adsorption system are influent storage sumps, an effluent storage sump, prefilters, effluent filters, two blow casing, a waste water sump, a spent carbon storage tank, and a fresh carbon storage tank. All of these operations, except the fresh carbon storage tank and the two blow casings, involve direct contact with the ground water which is being treated.

b. Spill Response.

[Information Under Development]

c. Spill Prevention.

(1) Inspection Procedures. The accumulation point area will be inspected weekly for all general conditions, including checking for leaks, corrosion to containers, and any needed maintenance to the facility.

(2) Operating Procedures and Information. The floor and equipment is kept clean and the building is basically free of nonessential equipment and clutter.

(3) Controls. The Northwest Boundary System sumps are equipped with overfill protection. The influent sumps have high and low level monitoring which controls the dewatering well sumps. The waste water sump overflows into the influent sumps.

(4) Security. The Northwest Boundary influent, effluent and waste water sumps are external to Building 810. The influent and effluent sumps are contained in a a separate building but the waste water sump is not protected by a fence or other barrier. Plant security checks Building 810 periodically but does not provide continuous monitoring of the sump. Building 810 is locked after hours.

d. Spill Containment System.

The Northwest Boundary System influent, effluent and waste water sumps do not have any secondary containment. The sumps are constructed of unlined concrete.

The carbon adsorption tanks, the spent carbon storage tank and the associated piping are provided with some secondary containment by Building 810. The secondary containment provided by Building 810 is not complete because of breaks in the floor berm at doorways. In addition, some ponding of liquid occurs during the floor washdown.

e. Spill History.

No information is available regarding past spills.

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

(1) The integrity of the existing tank systems should be assessed.

(2) Secondary containment for influent, effluent and waste water sumps should be provided.

(3) The secondary containment provided by Building 810 should be repaired.

SEWAGE TREATMENT PLANT

A. GENERAL DESCRIPTION

The location of the sewage treatment plant at the RMA is shown on the General Site Map (Appendix J, Plate III-B-J.2). The plant consists of several traditional municipal sewage treatment operations including trickling filters, tanks, ponds, chlorination basin, ditches and carbon adsorption units. Sewage and contaminated water that are collected in the sewers are treated by the system. The following section describes the sewage treatment plant as a potential spill site and responses and recommendations.

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. Building 391 and Associated Structures.

   a. Physical Description.

   The sewage treatment plant includes sewage treatment Building 391 and associated structures, two trickling filters (not currently in use), Imhoff tanks, a pond associated with the treatment of the sewage, a chlorination basin, and two ditches from the plant to First Creek. The tertiary treatment plant, installed in 1979, utilizes the process based on adsorption of organic materials from waste water in a bed of GAC to control the levels of dibromochloropropane found in the plant effluent.

   Waste water and sewage discharges from RMA are processed and treated at the Sewage Treatment Plant. Operation, maintenance and routine sample collection are the responsibility of the Treatment Plant Operator. The service and maintenance of the in-line carbon adsorption system is the responsibility of the Systems Operations Staff, who also operate and maintain the carbon adsorption systems at the North and Northwest Boundary treatment systems.

   b. Spill Response.

   (1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

   (2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

   (3) Substance-specific spill response procedures are provided in Appendix B.

   c. Spill Prevention.

   (1) Inspection Procedures. The sewage treatment plant is checked daily by personnel from the Systems Operations Division. This check is performed in accordance with the standard operating procedures, Sewage Tertiary Treatment Facility, dated 10 July 1986.

(2) Operating Procedures and Information.
[Information Under Development]

(3) Controls.
[Information Under Development].

(4) Security.
[Information Under Development].

d. Spill Containment System.
[Information Under Development]

e. Spill History.
[Information Under Development]

f. Potential Spills.
[Information Under Development]

g. General Recommendations.
[Information Under Development]

HAZARDOUS WASTE STORAGE BUNKERS

A. GENERAL DESCRIPTION

[Information Under Development]

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. Building 1608.

   a. Physical Description.

      [Information Under Development]

   b. Spill Response.

      (1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

      (2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

      (3) Substance-specific spill response procedures are provided in Appendix B.

   c. Spill Prevention.

      [Information Under Development]

   d. Spill Containment System.

      [Information Under Development]

   e. Spill History.

      [Information Under Development]

   f. Potential Spills.

      [Information Under Development]

   g. General Recommendations.

      [Information Under Development]

BASIN A NECK GROUND WATER INTERCEPT AND TREATMENT SYSTEM

A. GENERAL DESCRIPTION

The Basin A Neck Treatment System is located at the alluvial ground water outlet for the Basin A area (see Plate B-III-J.2). The facility is designed to intercept and treat contaminated ground water flowing from the South Plant and the Basin A area. The system consists of nine extraction wells, carbon sorption treatment, and three injection trenches located downstream of a bentonite barrier.

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. Basin A Neck Treatment System.

   a. Physical Description.

   Associated with the carbon adsorption system are influent storage sumps, an effluent storage sump, prefilters, effluent filters, a flocculant tank, a spent-carbon storage tank, and a fresh-carbon storage tank.

   b. Spill Response.

   (1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

   (2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

   (3) Substance-specific spill response procedures are provided in Appendix B.

   (4) Contractor contingency plans are currently under development and will be provided in Volume IV at a later date.

   c. Spill Prevention.

   [Information Under Development]

   d. Spill Containment System.

   [Information Under Development]

   e. Spill History.

   [Information Under Development]

   f. Potential Spills.

   [Information Under Development]

   g. General Recommendations.

   [Information Under Development]

IRONDALE GROUND WATER TREATMENT FACILITY

A. GENERAL DESCRIPTION

[Information Under Development]

B. DESCRIPTION OF POTENTIAL SPILL SITES

1. [Information Under Development]

a. Physical Description.

[Information Under Development]

b. Spill Response.

(1) Immediate spill reporting and response actions are discussed in Section B3 of this ISCP.

(2) Procedures for spill mitigation and cleanup are discussed in Section B7 of this ISCP.

(3) Substance-specific spill response procedures are provided in Appendix B.

c. Spill Prevention.

[Information Under Development]

d. Spill Containment System.

[Information Under Development]

e. Spill History.

[Information Under Development]

f. Potential Spills.

[Information Under Development]

g. General Recommendations.

[Information Under Development]

APPENDIX B

SPILL RESPONSE PROCEDURES

RESPONSE PROCEDURES FOR OIL SPILLS

In the event of an unknown hazard, limit the potential exposure to minimum number of personnel, for a minimum period of time, and to a minimum amount of spilled material consistent with safe and efficient operations.

Personnel should not attempt to mitigate spills without proper training and protective clothing. In the event of unknown hazard or if the spill poses a health or safety risk to personnel, the immediate action is to evacuate the area, call the Fire Prevention and Protection Branch, and wait for the IRT to respond.

A. ABOVEGROUND OIL SPILL

1. **Precautions.** No smoking or flames.
2. **Protective Equipment.** Protective neoprene gloves and goggles or face shield.
3. **Spill Control Actions.**
   a. Close off the entrance to any nearby surface-water drainage ditches/channels.
   b. Using sorbent material or dirt, control the spreading of the spill and seal off any pooled product.
   c. Collect any pooled product in 55-gallon drums, if possible. It may be possible to clean up a major spill by using a vacuum truck.
4. **Disposal.** Disposal plans must be approved by the State prior to disposal actions.

B. UNDERGROUND OIL LEAKS

1. **Spill Control Actions**
   a. If there is a question as to whether an underground tank is leaking, the tank should be hydrostatically pressure tested.
   b. When a leak is identified, the fluid remaining in the tank must be removed immediately and pumped into appropriate containers.

c. Based on the circumstances, a consultant may be required to determine the extent and location of the leaked material by using monitoring wells. The IOSC will arrange for any consulting service needed.

d. If a significant amount of material is located, a recovery operation should be initiated to collect the product. Plans for recovery operations will be coordinated with the CDH and EPA Region VIII.

2. **Disposal**

a. Recovered product may be salvaged as waste oil.

b. When the leaking tank is repaired or replaced, any heavily contaminated soil will be removed and disposed of.

RESPONSE PROCEDURES FOR ACID SPILLS

In the event of an unknown hazard, limit the potential exposure to minimum number of personnel, for a minimum period of time, and to a minimum amount of spilled material consistent with safe and efficient operations.

Personnel should not attempt to mitigate spills without proper training and protective clothing. In the event of unknown hazard or if the spill poses a health or safety risk to personnel, the immediate action is to evacuate the area, call the Fire Prevention and Protection Branch, and wait for the IRT to respond.

A. SPILL CONTAINMENT

Add sodium bicarbonate to the liquid acid spill until it is completely covered. If the spilled acid is a solid pellet, flake, or powder, clean it up by containerizing as much of the material as possible; then add sodium bicarbonate to the remaining material until completely covered. Test with pH paper for a pH reading of 6 to 8. Tables II-B-B.1 and II-B-B.2 provide a list of compounds that are recommended for treatment with sodium bicarbonate.

B. CLEANUP

Add sawdust or clay until the acid and sodium are completely covered. Scoop up spent solid absorbent material with a non-sparking shovel with a long handle. Place spent waste in a proper container. The waste container should be properly color coded and labeled "ACID WASTE."

C. CONTAINER

Plastic or Rubber.

D. PERSONAL PROTECTIVE EQUIPMENT

Employees involved in cleaning up an acid spill must wear the following protective clothing and equipment:

1. Chemical-protective clothing.
2. Rubber or neoprene 18-inch gauntlet gloves.
3. Rubber hightop boots or overshoes.
4. Wash all reusable clothing after use and have it cleaned before reuse.
5. Positive pressure self-containing breathing apparatus.

TABLE II-B-B.1

COMPOUNDS RECOMMENDED FOR TREATMENT WITH SODIUM BICARBONATE

Acetic acid	Sulfuric acid
Acrylic acid	Hydrogen fluoride
Formic acid	Nitric acid
Hydrochloric acid	Oxalic acid
Hydrofluoric acid	Phosphoric acid
Hydrogen chloride	Propionic acid

TABLE II-B-B.2

COMPOUNDS THAT REACT WITH WATER TO GIVE ACIDS THAT ARE RECOMMENDED FOR TREATMENT WITH SODIUM BICARBONATE

Acetic anhydride	Oleum
Aluminum chloride	Phosphorus oxychloride
Benzoyl chloride	Phosphorus trichloride
Bromine	Phosphorus pentasulfide
Chlorosulfonic acid	Polyphosphoric acid
Maleic anhydride	Sulfur monochloride
Nitrogen tetroxide	Sulfuryl chloride
Nitrosyl chloride	Titanium tetrachloride

6. A full face-shield is to be used when not wearing respirator and still handling spill.

E. FIRE EXTINGUISHERS

Use water, dry chemical, or carbon dioxide extinguishers. **CAUTION**, some acids may react violently with water.

F. EMERGENCY

1. If an employee ingests an acid or breathes the acid fumes, transport the employee to the local medical facility.
2. If an employee has acid spilled on him/her, provide immediate treatment by using an eye wash or shower as appropriate, and then transport the employee to the local medical facility. Take off any clothing that acids have contaminated.
3. Be prepared to tell the doctor which chemicals are involved.

RESPONSE PROCEDURES FOR CAUSTIC SPILLS

In the event of an unknown hazard, limit the potential exposure to minimum number of personnel, for a minimum period of time, and to a minimum amount of spilled material consistent with safe and efficient operations.

Personnel should not attempt to mitigate spills without proper training and protective clothing. In the event of unknown hazard or if the spill poses a helath or safety risk to personnel, the immediate action is to evacuate the area, call the Fire Prevention and Protection Branch, and wait for the IRT to respond.

A. SPILL CONTAINMENT

Enclose spilled caustic with a dike of solid sorbent (sawdust, vermiculite, or clay).

B. NEUTRALIZATION

Add 6N-hydrochloric acid (one part water to one part concentrated hydrochloric acid) to the spilled liquid caustic. If the spilled caustic is a solid power, pellet, or flake, clean up by containerizing as much of the material as possible, then add water to the remaining material. Next, add 6N hydrochloric acid to the material for neutralization. The solution should be tested with pH paper to ensure it is in the 6 to 8 pH range after neutralization.

In addition to 6N hydrochloric acid, sodium dihydrogen phosphate can also be used for neutralizing caustic spills. A list of chemicals that are recommended for treatment with sodium dihydrogen phosphate are listed in Tables II-B-B.3 and II-B-B.4.

C. CLEANUP

Add more absorbent, if necessary. Scoop up spent solid absorbent material with a nonsparking shovel or long-handled scoop. Place in the proper spent waste container. The waste container should be properly color coded and labeled "CAUSTIC WASTES."

D. CONTAINER

Rubber or plastic.

TABLE II-B-B.3

COMPOUNDS RECOMMENDED FOR TREATMENT WITH SODIUM DIHYDROGEN PHOSPHATE

Aminoethylethanolamine	Hydrazine
Ammonium hydroxide	Monethanolamine
Caustic potash solution	Monoisopropanolamine
Caustic soda solution	Morpholine
Cyclohexamine	Potassium hydroxide
Diethanolamine	Triethanolamine
Diethylenetriamine	Triethylamine
1,1-Dimethylhydrazine	Trimethylamine
Ethylenediamine	Hexamethylenediamine

TABLE II-B-B.4

COMPOUNDS THAT REACT WITH WATER TO GIVE BASES THAT ARE RECOMMENDED FOR TREATMENT WITH SODIUM DIHYDROGEN PHOSPHATE

Anhydrous ammonia	Sodium
Ethyleneamine	Sodium amide
Lithium aluminum hydride *	Sodium hydride

* Reacts violently with water and is a potential explosion hazard.

E. PERSONAL PROTECTIVE EQUIPMENT

Spilled caustics are very slippery, and care must be taken to avoid falls. Employees involved in cleaning up spills must wear the following protective clothing and equipment, or their equivalent:

1. Rubber or neoprene 18-inch gauntlet gloves.
2. Rubber suit with hood.
3. Rubber hightop boots or overshoes.
4. Disposable coveralls.
5. Positive pressure self-continuing breathing apparatus.
6. A full faceshield should be worn when a respirator is not worn while working with open chemicals.
7. Supplied-air respirator.

F. FIRE EXTINGUISHERS

Use water spray, dry chemical, or carbon dioxide extinguishers.

G. EMERGENCY

1. Remove contaminated clothing. Wash skin for 15 minutes under an emergency shower. Transport the employee to a local medical treatment facility.
2. If a chemical gets into an employee's eyes, use an eye lavage to flush the eyes for 15 minutes. Transport the employee to a medical facility.
3. Be prepared to tell the doctor which chemicals are involved.

RESPONSE PROCEDURES FOR FLAMMABLE AND COMBUSTIBLE ORGANIC LIQUID SPILLS

In the event of an unknown hazard, limit the potential exposure to minimum number of personnel, for a minimum period of time, and to a minimum amount of spilled material consistent with safe and efficient operations.

Personnel should not attempt to mitigate spills without proper training and protective clothing. In the event of unknown hazard or if the spill poses a health or safety risk to personnel, the immediate action is to evacuate the area, call the Fire Prevention and Protection Branch, and wait for the IRT to respond.

A. SPILL CONTAINMENT.

Enclose spilled organic liquid with a dike of sawdust or sweeping compound (solid absorbent).

B. CLEANUP.

Use enough absorbent to soak up all the spilled liquid. Since most organic liquids are very flammable, avoid all sources of ignition or sparking. Scoop up spent solid absorbent with a nonsparking shovel or long-handled scoop. Place absorbent in a proper waste container. The waste container should be color coded and labeled "WASTE FLAMMABLE OR COMBUSTIBLE MATERIAL."

C. CONTAINER.

Metal can lined with plastic.

D. PERSONAL PROTECTIVE EQUIPMENT.

Vapors heavier than air tend to accumulate in low places; avoid having flammable vapors come in contact with ignition sources to prevent flashback. Employees involved in cleaning up a spill must wear the following protective clothing and equipment or their equivalent:

1. Rubber hightop boots or overshoes.
2. A full face shield should be used when not wearing the respirator and working with open chemicals.
3. Full Protective clothing (NOMEX, BPI) structural fire fighters protective clothing is most suitable for this type of tank.

E. FIRE EXTINGUISHERS.

Use carbon dioxide or dry chemical type. In case of fire, call the fire department. Cool nearby drums with a stream of water to prevent ignition and the possibility of pressure increase in the containers.

F. EMERGENCY.

1. Skin contact. All clothing contaminated with chemicals must be removed at once, including rubber foot wear, and should be thoroughly washed with plenty of water for at least 15 minutes. The skin should be washed with soap and water, and the employee transported to the local medical treatment facility.
2. Inhalation or taken internally: Transport the employee to the local medical facility immediately.
3. Eyes. Irrigate the eyes for 15 minutes and transport the employee to the local medical facility.
4. Be prepared to tell the doctor which chemicals are involved.

RESPONSE PROCEDURES FOR PESTICIDES SPILLS

In the event of an unknown hazard, limit the potential exposure to minimum number of personnel, for a minimum period of time, and to a minimum amount of spilled material consistent with safe and efficient operations.

Personnel should not attempt to mitigate spills without proper training and protective clothing. In the event of unknown hazard or if the spill poses a health or safety risk to personnel, the immediate action is to evacuate the area, call the Fire Prevention and Protection Branch, and wait for the IRT to respond.

A. SPILL CONTAINMENT.

Enclose liquid spills with a dike of solid absorbent (e.g., sawdust, clay, or vermiculite).

B. NEUTRALIZATION.

Add sodium hypochlorite (bleach) and cover with lime.

C. CLEANUP.

Add more absorbent if necessary. Scoop up spent solid absorbent and place in proper waste container.

D. CONTAINERS.

Metal can lined with plastic liner.

E. PERSONAL PROTECTIVE EQUIPMENT.

The following protective clothing and equipment must be worn.

1. Impermeable hooded coverall.
2. Knee-high non-insulated black rubber boots. They should have water proof uppers, knurled rubber sole, non-slip heel, and be 15 inches high.
3. Gloves used should be natural or synthetic rubber, organic solvent resistant, rolled edge cuff, 14 inches long, and black.
4. Chemical splash goggles, without vent, made of rubber neoprene material should be used. AO® model 40989 or equivalent are examples. They should be used when a respirator is not worn.
5. For pesticides, use air-purifying respirator, MSA® Part No. 4648983 with canister part number 448972, NIOSH approval number TG-14G-86, or equivalent should be used.
6. A full face shield should be used when a respirator is not worn while working with open chemicals.

7. Pest control personnel require additional items which are prescribed in the U.S. Army Environmental Hygiene Agency (USAEHA) Guide to Protective Equipment for Pest Control Personnel, dated June 1977.

F. FIRE EXTINGUISHERS.

None. Evacuate and call the Fire Prevention and Protection Branch.

G. EMERGENCY.

1. If pesticides contact skin remove contaminated clothing. Wash skin for 15 minutes and report to local medical facility.
2. If pesticides are spilled in the eyes, wash in an eye lavage for 15 minutes and report to the local medical facilities.
3. If there are any signs of dizziness, upset stomach, etc., report to the medical facility.
4. Be prepared to tell the doctor which chemicals are involved.

RESPONSE PROCEDURES FOR CHLORINE SPILLS

In the event of an unknown hazard, limit the potential exposure to minimum number of personnel, for a minimum period of time, and to a minimum amount of spilled material consistent with safe and efficient operations.

Personnel should not attempt to mitigate spills without proper training and protective clothing. In the event of unknown hazard or if the spill poses a health or safety risk to personnel, the immediate action is to evacuate the area, call the Fire Prevention and Protection Branch, and wait for the IRT to respond.

A. SPILL CONTAINMENT.

Stop the leak with a chlorine cylinder patch kit after donning personal protection equipment if it can be done without personal risk. Chlorine cylinder patch kits are available for 1-ton and 150-pound chlorine cylinders. Isolate the leak on spill area immediately for at least 150' in all directions.

B. HEALTH HAZARDS.

Chlorine gas is a poison hazard indoors, outdoors, and in sewers, and may be fatal if inhaled. Contact with chlorine gas may cause burns to the skin and eyes.

C. PERSONAL PROTECTIVE EQUIPMENT.

Employees involved in containing a chlorine gas spill must wear the following protective clothing and equipment:

1. Self-contained breathing apparatus.
2. Rubber gloves.
3. Rubber hightop boots or overshoes.
4. Full Protective Clothing.

D. FIRE EXTINGUISHERS.

Released chlorine gas vapors as well as chlorine gas cylinders can explode. In case of a fire, call the fire department. For small fires, use dry chemical or carbon dioxide type fire extinguishers. For large fires, use water spray, fog, or foam.

E. EMERGENCY.

1. Evacuate and isolate: Keep unnecessary people away; evacuate the area endangered by gas; isolate the hazard area and deny entry.
2. Inhalation: Move the victim to fresh air and call for emergency medical care. If the victim is not breathing, give artificial respiration.

3. Skin and eye contact: Immediately flush skin or eyes with running water for at least 15 minutes. Remove and isolate contaminated clothing and shoes at the site.
4. Report to a medical facility.
5. Be prepared to tell the doctor which chemicals are involved.

APPENDIX C

EMERGENCY RESPONSE EQUIPMENT

EMERGENCY RESPONSE EQUIPMENT INVENTORY

A. EQUIPMENT AND SUPPLIES

Sources of available equipment, vehicles, and types of absorbent material to contain and cleanup an accidental spill at RMA are discussed in this section. A variety of equipment is available for containment and cleanup operations. Absorbent materials (booms, pads, sheets, rolls, and sand) are available to contain and remove minor discharges (1,000 gallons or less). Larger spills require the use of absorbents, earth-moving equipment (graders, bulldozers, trucks, front-end loaders), and/or pumps to remove excess amounts of oil from the spill site. The equipment available at RMA is probably adequate for the control and cleanup of any foreseeable spill at the installation. Arrangements for access to heavy equipment needed for emergency response are made through the Facilities Maintenance IRT representative.

1. The following is a list of the equipment items, major and minor, available at the installation from the Facilities Maintenance Branch:

Heavy Equipment:	Location
Crane	Bldg 712
Backhoe	Bldg 742
2 Graders	Bldg 544
Front-end Loader w/backhoe	Bldg 742
Tractor w/buckets	Bldg 742 and yard near Bldg 544
Truck w/blade	Bldg 742
2 Gas-driven pumps	Bldg 543
Submersible and hand pumps	Bldg 543

2. Emergency Vehicles. The FPPB is equipped with three fire engines, one tanker, a modular Basic Life Support ambulance, and a back-up transport vehicle. The Fire Chief's 4-wheel-drive vehicle can also be used as a mobile command post. Table II-B-C.1 lists the emergency vehicles available at RMA and specifics concerning each vehicle.

3. Miscellaneous Equipment. Shovels, brooms, maps, empty drums, and miscellaneous construction materials are available at each location that handles or stores POL or hazardous toxic substances.

4. Supplies

   a. Absorbent Materials. Information on absorbent materials is required by 40 CFR 112.7(c)(1)(vii) and AR 200-1, 8-7(b). Absorbent materials, as well as plug and patch materials, are stored at the RMA FPPB and are readily available if an accidental spill occurs. The types of absorbent materials available are listed below:

TYPES	SIZE	APPROXIMATE CAPACITY	USE
Sheets (50) (polypropylene fibrous material)	36"x36"x3/16" (thickness)	200-400 gallons	Small spills, Shallow water in a contained area
Rolls (5) (polypropylene fibrous material)	36"x150'x3/8" (thickness)	200-1,000 gallons	Over large flat areas
Boom (polypropylene fibrous material)	8" (diameter) x 10' (length)	100-200 gallons	Small spills in a contained structure
Boom (polypropylene fibrous material)	2-5" diameter x 10' (length)	100-200 gallons	Small spills in a contained structure
Clay (5 bags)	50.5 lbs	2 lbs/lb of clay	Small spills in a contained structure

TABLE II-B-C.1

ROCKY MOUNTAIN ARSENAL APPARATUS INFORMATION

RMA 235: Radio Call Sign; Engine 2
1973 American Air Filter Co. Inc. (Military 530C), 465 cu in diesel
6X6
750 GPM Pumper (pump and roll)

discharges	2½"	3		
	1½"	1 intakes	2½"	1
	4½"	2		

Water Tank	400	Gals
FOAM	55	Gals ATC/AFFF
HOSE		
Booster line 1"	150'	each reel (2 reels)
1½"	200'	preconnect
1½"	200'	skid load
2½"	1200'	
2½" soft suc.	12'	
4½" soft suc.	15'	rear on tailboard

NOZZLES
ground sweep nozzles forward

booster line	12-30 GPM Akron
1½	30-125 GPM TFT, Preconnect, Skid Load Akron
2½	50-350 GPM TFT

LADDERS

attic	10'
roof	14'
extension	24'

RMA 168: Radio Call Sign; Tanker 1
1974 GMC 7500, V6-53N diesel, 6X6
250 GPM (Pony pump)

discharges 2½"	1	
intakes 2½"	1	
Water tank	2200	Gals
HOSE		
1½"	100'	preconnect
	100'	compartment #2
2½"	100'	compartment #2
2½" soft suc.	24'	

NOZZLES
ground sweep nozzles forward

1½"	30-125 GPM TFT

TABLE II-B-C.1 (Continued)

ROCKY MOUNTAIN ARSENAL
APPARATUS INFORMATION

RMA 236:
Radio Call Sign; Attack 1
1987 Chevrolet K-30/3500, 6.2 ltr diesel, 4X4
250 GPM (Pump and Roll)

discharges	2½"		1	
	1½"		2	preconnects
intakes	3"		2	
Water Tank			250	Gals
HOSE				
booster lines 1"		150'	rear	
1½"		150'	each side total of 300' preconnect	
2½"		350'	hose bed	
NOZZLES				
ground sweep nozzles forward				
booster line				12-30 GPM, Akron
1½"				25-125 GPM, TFT
LADDERS				
extension	16'			
GENERATOR				
5000 watts pre-wired				

RMA 237: Radio Call Sign; Engine 1
1986 GMC-7000 (E-One), 8.2 ltr diesel, 4X4
1000 GPM Stationary Pump
250 GPM Pump-and-Roll pump

discharges	2½"		5	
intakes	2½"		1	
	6"		2	
Water Tank			750	Gals
Foam Tank			40	Gals ATC/AFFF
HOSE				
booster line	1"	105'	2 - one right side, one left side	
1½"		200'	preconnect rear	
2½"		900'	left side of bed, straight lay	
5"		500'	right side of bed, straight lay	
2½"		50'	top of pump panel	
1½"		150'	top of pump panel	
6" soft suc.		15'	Compartment # 9	
NOZZLES				
booster line			12-30 GPM Akron	
1½"			30-125 GPM preconnect TFT	
deck gun			50-1000 GPM TFT	
1½" - 2½"			50-350 GPM TFT	
LADDERS				
attic	12'			
roof	14'			
extension	24'			

TYPES	SIZE	APPROXIMATE CAPACITY	USE
Soda Ash (13 bags)	100 lbs (thickness)	--	Neutralization of corrosive spills
Sodium Carbonate 100 lbs (59 bags)	--	--	Neutralization of corrosive spills
Overpack drums (85)	--	--	Repacking of leaking 55-gallon drum

b. Sand, sawdust, or vermiculite can be used as absorbent material to contain oil or some hazardous substance spills. These materials are available from the Motor Maintenance Section, through the Logistics Branch Chief/Representative, if an accidental spill occurs.

c. Containment Dams and Barriers. Dams and barriers can be used to contain large spills.

(1) Earth Fill Dams

- An earth fill dam is commonly used for spill containment. Ideally, a spill should be caught in its earliest stage close to the source, thus permitting the simplest means of containment and recovery, and with minimal damage to the surroundings.
- Spills which occur on dry land, remote from water, generally provide better prospects for effective containment with an earth fill barrier forming a temporary reservoir. A shallow holding pond can be formed by trenching and terracing. The options will, of course, vary with terrain, spill volume, soil conditions, lead time, manpower, equipment availability, etc. Lead time is the most critical factor in any event and dictates where and how containment efforts must proceed.
- Dams should be compacted as constructed by whatever means possible. The top of the dam should be 3 to 4 feet higher than the level to which the oil-water layers are expected to rise.
- Construction of a reservoir or dry land impoundment will buy time to allow removal of the spill material.
- If the surface water drainage is anticipated, preparations should be made to pump or siphon off the water to the downgrade side.

(2) Straw Barriers

- Experience with straw barriers has demonstrated effectiveness not only as an absorbent medium, but as an underflow type containment dam capable of backing up an oil film several inches in thickness. An extensive spill may require a series of straw barriers.
- Wire fencing and steel posts form the backup for the straw. Steel posts should be driven into the stream bottom. Wire fence can then be tied to the posts and anchored adequately at each bank. The straw should be broken out of the bails and spread across the full width of the structure. The depth of the straw should be maintained at a minimum of 6 inches and the straw should extend upstream for about 10 to 15 feet, depending on specific circumstances.
- The fencing can also be strung to suspended cables. The fence must be adequately anchored at the bottom to avoid dumping saturated straw as the load or current increases.
- Placement of any type barrier is critical with respect to water velocity. Chances of spill recovery diminish rapidly in water moving faster than 2 feet per second. The more quiescent pools of the stream should be selected for containment operations.
- Sorbent material, other than straw, may be used if they are available and have the physical characteristics to perform adequately. Any berm or barrier must be continuously maintained. At the completion of the emergency, all material added to a stream must be removed and disposed of in adequate fashion.

d. Pesticide/Herbicide Spill Kits. Two types of pesticide/herbicide spill kits, a shop kit and a vehicle kit, are used at RMA. Contents of the spill kits are listed below:

SHOP KIT	VEHICLE KITS
1 55-gallon open-head drum	1 instruction sheet
4 pairs of neoprene gloves	2 pairs of neoprene gloves
2 pairs of unvented goggles	1 pair of unvented goggles
2 respirators and pesticide cartridges	1 respirator and cartridge
2 aprons (chemical resistant)	1 pair of coveralls
2 pairs of rubber boots	1 dustpan
2 pairs of 100% cotton coveralls	1 shop brush
1 dustpan	10-30 pounds absorbent material
1 small dust brush	1 pint liquid detergent
1 square-point "D" handle shovel	1 apron
1 dozen polyethylene bags w/ties (heavy ply)	6 polyethylene bags w/ties (heavy ply)
1 18" pushbroom, synthetic fibers	1 portable eyewash
1 gallon liquid detergent	3 gallons household bleach

SHOP KIT	VEHICLE KITS
1 first aid kit	1 pair rubber boots
80 pounds absorbent material	blank labels
1 bung wrench	
1 drum spigot	
1 1 3/8" open-end wrench	
1 drum pump (manual)	
30 feet 1/2" polyethylene tubing or 1 25-foot garden hose	
1 2 1/2" bung	
1 3/4" bung	
1 first aid kit (standard)	
blank labels	

Either lime/lye or chlorine bleach may be used as a decontamination chemical for certain pesticides used at RMA. Instruction sheets indicate which decontamination chemical to use for spills of a variety of pesticides as well as those pesticides for which no decontamination chemical should be used. These kits are available through the FPPB.

B. FIRE PROTECTION SYSTEMS

1. Existing fire protection systems.

   a. The fire protection systems include:

   - Water mains and fire hydrants
   - Fire extinguishers (carbon dioxide, Halon®, dry chemical)
   - Aqueous film-forming foam (AFFF)
   - ABC (phosphate dry chemical)
   - Sprinkler systems

   The specific locations and the type of fire protection systems present at RMA are listed in Table II-B-C.2 and fire hydrant locations for each area can be found in Appendix J.

   b. Fire flow tests and hydrant maintenance are performed annually and after any major water main and/or hydrant repairs. Static pressures vary from area to area throughout the installation. The following are approximate averages by area:

   - RMA Logistics Area: 85 psi
   - South Plants Area: 95 psi
   - North Plants Area: 105 psi

TABLE II-B-C.2
ROCKY MOUNTAIN ARSENAL FIRE PROTECTION SYSTEMS

Location/Facility	Fire Protection System
LOGISTICS AREA	
Tank 632	Fire hydrant
Tank Farm 10176	Fire hydrant
Tank Farm 629 Tanks 629A-D, and 628A	Fire hydrant and fire extinguishers
Tanks 648A and B	Fire hydrant
Motor Pool Service Station	Fire hydrant and fire extinguishers
Building 616	Fire hydrant and fire extinguishers
Building 618	Dry sprinkler system, fire hydrant, and fire extinguisher-
Building 631 and 631A	Dry sprinkler system, fire hydrant, and fire extinguisher
Building 627	Dry sprinkler system, fire hydrant, and fire extinguisher
Building 621, 633B	Fire hydrant and fire extinguishers
Building 624	Wet sprinkler system, fire hydrant, and fire extinguisher
NORTH PLANTS AREA	
Tank Farm 1402	Fire hydrant (inoperable) and fire extinguishers
Tank Farm 1403	Fire hydrant (inoperable) and fire extinguishers
Tank Farm 1505	Water from emergency showers
Tank Farm 1510	Fire hydrant (inoperable)

TABLE II-B-C.2 (Continued)
ROCKY MOUNTAIN ARSENAL FIRE PROTECTION SYSTEMS

Location/Facility	Fire Protection System
NORTH PLANTS AREA (continued)	
Tank South of Building 1611	Fire hydrant (inoperable) and fire extinguishers
Tank North of Building 1611	Fire hydrant (inoperable) and fire extinguishers
Building 1701	Wet sprinkler system and fire hydrants (inoperable)
Building 1727 Sump	Fire hydrants (inoperable)
Building 1713	Fire hydrants (inoperable)
SOUTH PLANTS AREA	
Fueling Station	Fire hydrants
Building 313, Lab	Wet sprinkler system, fire hydrant, and fire extinguisher
Building 321	Fire hydrants and fire extinguishers
Building 331 and 332	Fire extinguishers and smoke/fire detectors
Building 368 and 372A	Fire hydrant and fire extinguishers
Building 451	Fire hydrants
Building 543	Wet sprinkler system, fire hydrants, and fire extinguisher
Building 741	Wet sprinkler system, fire hydrants, and fire extinguisher
Building 742	Fire hydrant and fire extinguishers

TABLE II-B-C.2 (Continued)
ROCKY MOUNTAIN ARSENAL FIRE PROTECTION SYSTEMS

Location/Facility	Fire Protection System
Building 743	Wet sprinkler system, fire hydrants, and fire extinguisher
Tank Farm 321 A, B, E	Fire hydrants
Tank 463D	Deluge sprinkler system, fire hydrants, and fire extinguishers
Tank 805	Deluge sprinkler system, fire hydrants, and fire extinguishers
Liquid Waste Treatment Facility (Building 540)	Fire hydrant
BASIN F STORAGE FACILITIES	
Tanks 815, 816, 817	Fire hydrants
Pond A	None
Wastepile	None
OLD TOXIC STORAGE YARD	None
CENTRAL WASTE HANDLING FACILITY	
Building 785	Fire extinguishers
Building 786	Fire extinguishers
Building 787	Fire extinguishers
Building 788	Fire extinguishers
Building 791	Fire extinguishers
Building 794	Fire extinguishers
Building 796	Fire extinguishers
Building 797	Fire extinguishers
Building 798	Fire extinguishers

TABLE II-B-C.2 (Continued)

ROCKY MOUNTAIN ARSENAL FIRE PROTECTION SYSTEMS

Location/Facility	Fire Protection System
NORTH AND NORTHWEST BOUNDARY GROUND WATER INTERCEPT SYSTEMS	Fire extinguishers and water supply
SEWAGE TREATMENT PLANT	Fire extinguishers
HAZARDOUS WASTE STORAGE BUNKERS(BUILDING 1608)	*
BASIN A NECK GROUND WATE INTERCEPT AND TREATMENT FACILITY	Fire extinguishers
IRONDALE GROUND WATER TREATMENT FACILITY	Fire extinguishers

* Information Under Development.

c. Potable water is supplied by the City of Denver through a 33-inch main for all needs on RMA. A 1-million gallon, potable water reservoir (Building 372) with two 1,400-gallons-per-minute pumps is kept full for emergency use. Process (nonpotable) water is supplied primarily from Lake Ladora.

d. Fire extinguishers (carbon dioxide, Halon®, and dry chemical) are inspected monthly and by the FPPB given required servicing and maintenance. Records are maintained at the FPPB (Building 372). Two and 0.5- and 5-pound dry chemical units are installed in or on all vehicles and mobile equipment. These are checked by the driver/operator and any deficiencies noted are reported to the fire department for immediate correction.

e. AFFF, carbon dioxide, and dry powder products are used to extinguish any petroleum product fires.

C. AIR MONITORING SYSTEM

Special air monitoring may be initiated by the IOSC if emergency conditions could affect air quality at or within RMA boundaries.

D. COMMUNICATIONS SYSTEM

In the event of an incident, the IOSC may coordinate the response effort through the use of telephones and/or radio communications networks including telephones, mobile phones, citizens bank radios and walkie talkies.

1. Radios

a. RMA has available and will utilize three separate radio networks for communications during an incident alert or exercise. These are as follows:

- Security Network - "X-Ray" prefix
- Emergency Network - "Charlie" prefix
- Technical Escort Network

Other radio frequencies may be used by contractor personnel.

b. Table II-B-C.3 lists the personnel and positions which have access to the Security and/or Emergency networks.

c. The U.S. Army Technical Escort Unit (USATEU) will be requested to respond to a chemical agent incident which is beyond the capabilities of available RMA equipment and personnel. USATEU is equipped with radios, and will transmit and receive on their dedicated frequency.

TABLE II-B-C.3

SECURITY AND EMERGENCY NETWORK ACCESS[a/b/]
(Under revision - information may be incorrect)

AAF 650 NETWORK CONTROL (DESK OFFICER) Call Signs			AAF 655 FIRE BASE Call Signs
X	5	DEPUTY PROGRAM MANAGER	C 5
X	6	PROGRAM MANAGER	C 6
		EMERGENCY CONTROL CENTER (ECC)	C 6a
		ALTERNATE ECC [Fire Prevention and Protection Branch (FPPB)]	C 6b
X	7		C 7
		TECH ESCORT DETACHMENT	C 10
		TECH ESCORT DECON TEAM	C 10D
		HOT LINE FOREMAN	C 11
		SITE (HOT LINE) MONITORING TEAM	C 15
		DOWNWIND MONITORING TEAM	C 16
		FIRE HEADQUARTERS (Bldg 312)	FIRE BASE, C18
		FIRE CHIEFS VEHICLE	ADMIN-1
		FPPB ENGINE #1 (RMA 237)	ENGINE-1
		FPPB ENGINE #2 (RMA 235)	ENGINE-2
		FPPB ENGINE #3 (RMA 234)	ENGINE-3
		FPPB MINI PUMPER (RMA 236)	ATTACK-1
		FPPB AMBULANCE (RMA 195)	AMBULANCE-1
		FPPB AMBULANCE (RMA 194)	AMBULANCE-2
		FPBB PICKUP (RMA 41)	ADMIN-2
		FPBB TANKER (RMA 168)	TANKER-1
		FIRE CHIEF (Wittig)	CHIEF 1
		ASSISTANT FIRE CHIEF (Wilhelm)	CHIEF 2
		ASSISTANT FIRE CHIEF (Teter)	CHIEF 3
		FIRE CAPTAIN (Smith)	COMMAND 4
		FIRE CAPTAIN (Hilinski, Training Off)	COMMAND 5
		FIRE CAPTAIN (Hlavaty)	COMMAND 6
X	25	CHEMICAL ACCIDENT/INCIDENT RESPONSE OFFICER (CAIRO)	C 25
		ASSISTANT CAIRO	C-25A
X	27	CHIEF SECURITY OFFICE	C 27
X	29	SECURITY SPECIALIST	C 29
X	30	SHIFT COMMANDER	C 30
X	31	ASST SHIFT COMMANDER	
X	33	PATROL 33	
X	34	PATROL 34	
X	35	SPECIAL RESPONSE TEAM	
		SAFETY OFFICE	C 40
		PUBLIC AFFAIRS OFFICE (PAO)	C 41
			C 42
		HOT LINE TEAM	C 55

TABLE II-B-C.3 (Continued)

SECURITY AND EMERGENCY NETWORK ACCESS
(Under revision - informatin may be incorrect)

AAF 650 NETWORK CONTROL (DESK OFFICER)			AAF 655 FIRE BASE
X	56	HOT LINE GUARD REGISTRATION	
X	63	POST #3 (WEST GATE)	
X	64	POST #4 (SOUTH GATE)	
		STEARNS ROGER UNIT #1	C 80
		STEARNS ROGER UNIT #2	C 81
		STEARNS ROGER UNIT #3	C 82
		STEARNS ROGER UNIT #4	C 83
X	99	HELICOPTER AERIAL OBSERVER	C 99

a/ Any other contractors or other elements using a radio on the "C" Network will be assigned a call sign as needed.

b/ The Security Office keeps an up-to-date copy of all radio call frequency.

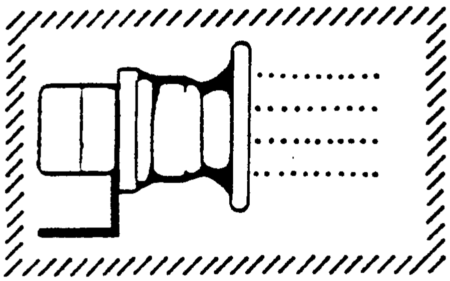
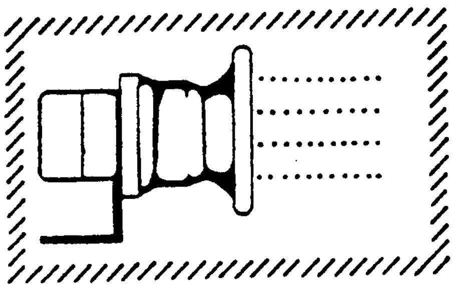
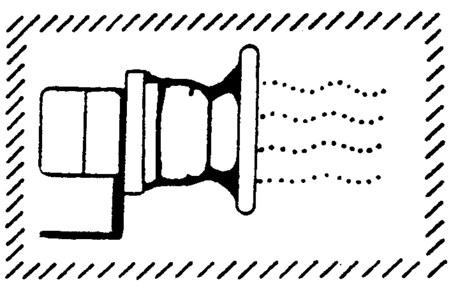
2. Telephones

   The Law Enforcement and Security Branch maintains a current list of work and home telephone numbers for the IOSC, IOSC alternates, and members of the IRT.

3. Emergency Warning Signals

   RMA emergency warning signals are listed in Table II-B-C.4. The fire department has the authority to sound the siren in the event of a tornado. However, the sounding of the siren for any other reason must be authorized by the IOSC.

TABLE II-B-C.4
SITE EMERGENCY WARNING SIGNALS

Signal		Incident/Alarm Type	Response
	Steady siren - duration of 3 minutes	Attention - any peacetime emergency a/ (e.g. tornadoes, etc...)	Take cover indoors
	Steady siren - duration of 30 to 45 seconds	Chemical Accident/Incident b/	Installation Response Team members report to assigned station No action required from other personnel
	Wailing up and down scale signal - duration of 3 minutes	Site-Wide Evacuation b/	Proceed to west gate, south gate, or North Boundary Ground Water Treatment Facility
	Verbal notification	All Clear b/	Resume activities

a/ In the event of a tornado, the Fire Prevention and Protection Branch has the authority to immediately sound the site emergency signal to alert on-site personnel of danger.

b/ The situation will be assessed by the Installation-On-Scene-Coordinator and only through his authorization will emergency signals be sounded.

APPENDIX D

OUTSIDE ASSISTANCE

A. COORDINATION AGREEMENTS (Copies of the agreements can be found at the end of this Appendix.)

1. Stapleton International Airport Crash/Fire/Rescue (via Denver Police Department at Stapleton)
   (303) 270-1875

2. Adams County Mutual Aid (ADCOM)
   Dial 911 or (303) 288-1535

3. South Adams County Hazardous Materials Response Team
   Dial 911 or (303) 288-1535

4. Fitzsimons Army Medical Center (FAMC)
   Directorate of Engineering and Housing
   (303) 361-8540

5. FAMC Fire Department
   (303) 361-8461

6. FAMC Emergency Room
   (303) 361-8031

7. Aurora Presbyterian Hospital
   (303) 360-3133

8. Humana Mountain View Hospital
   (303) 450-4882

B. ADDITIONAL ASSISTANCE

1.	Air Life		(303) 360-3400
2.	Colorado Department of Health, Denver		(303) 331-4530 or 370-9395 (after hours)
3.	Colorado Highway Department		(303) 239-4501
4.	Chemical Transportation Emergency Center (CHEMTREC)		(800) 424-9300
5.	Environmental Office, Department of the Army, Headquarters	DSN	285-0591
6.	Flight for Life		(303) 629-3900
7.	Federal Emergency Management Agency (FEMA)		(303) 235-4800 or (303) 235-4900 (after hours)
8.	National Pesticide Telecommunications Network		(800) 858-7378
9.	National Response Center		(800) 424-8802
10.	94th Explosives Ordnance Detachment (EOD) in Fort Carson, CO:		
	1st Sergeant	COMMERCIAL	(719) 579-2643/4242
	24 hour number	DSN	691-2643
11.	Oil and Hazardous Substance Spill Response Team	COMMERCIAL	(301) 671-3816
		DSN	584-3816
12.	Poison Control Center St. Anthony Central		(303) 629-1123
13.	Resource Conservation and Recovery Act (RCRA) Hotline		(800) 424-9346
14.	Toxic Substance Control Act (TSCA) Hotline		(202) 554-1404
15.	United States Army Technical Escort Unit Aberdeen Proving Ground (Edgewood, Maryland)	DSN	584-4383

16. U.S. Army Environmental Hygiene Agency - West — COMMERCIAL (303) 361-8881; DSN 943-8096

17. U.S. Environmental Protection Agency, Region VIII 24-hour Emergency Spill Number (303) 293-1788

18. In addition to the above-listed organizations the following emergency response resources may be useful.

    a. CHRIS MANUAL - Chemical Hazards Response Information System.

    The CHRIS manual is an official publication of the U.S. Coast Guard that currently provides technical information and appropriate response procedures for over 1,000 different substances. The manual contains four volumes which are periodically updated.

    b. Hazardous Chemical Data.

    This guide, published by the National Fire Protection Association, is keyed only to hazards during fires.

    c. Pocket Guide to Chemical Hazards.

    This reference, published by NIOSH/Occupational Safety and Health Administration (OSHA), contains information on various chemicals. An expanded version, "Occupational Health Guidelines for Chemical Hazards" is useful for planning and contains information on signs and symptoms of overexposure, emergency first aid, protective equipment, sanitation, and spill procedures.

    d. Department of Transportation Response Guides.

    The guide deals with chemicals in original transportation. The 1980 to 1981 "Hazardous Materials - Emergency Response Guidebook" has an alphabetical chemicals list coded by UN number, both keyed to "generic" numbered response guides, plus an evacuation distance table. This is the only response guide listing information for some general classes of chemicals (for example, mixed acids).

    e. Chemical Manufacturers' Association "Chemcards".

    These cards contain information similar to that in the CHRIS manual.

    f. Department of Defense (DOD) Hazardous Materials Information System (HMIS).

    This reference contains information on firefighting, explosion procedures, emergency first aid, protective equipment, and spill/leak procedures for chemicals listed by national stock numbers (NSN).

g. Computer Aided Management of Emergency Operations (CAMEO) from the National Oceanic and Atmospheric Administration (NOAA). Access from the Communications Center, Building 312.

h. Health and Safety Plan Incident Evaluation (HASP) from the U.S. Environmental Protection Agency (EPA). Access from the Communications Center, Building 312.

i. Automated Resources for Chemical Hazards (ARCHIE) from the EPA. Access from the Communications Center, Building 312.

j. Rocky Mountain Arsenal (RMA) Chemical Index.

k. Downwind modeling programs.

l. Current meteorological data generated by the RMA meteorological stations.

FEDERICO PEÑA
Mayor

CITY AND COUNTY OF DENVER

DEPARTMENT OF FIRE

OFFICE OF
CHIEF OF FIRE DEPARTMENT
745 WEST COLFAX AVENUE
DENVER, COLORADO 80204

January 26, 1988

Martin L. Wittig
Chief, Fire Prevention Branch
Department of the Army
Rocky Mountain Arsenal
Commerce City, CO 80022-2810

Chief Wittig:

I have reviewed the reciprocal agreement for firefighting assistance in the event of an aircraft crash. The Denver Fire Department finds this agreement acceptable to its needs and considers the agreement to be in force on this date.

Sincerely,

Lorren L. Ballard

Lorren L. Ballard,
Operations Division Chief

LLB:msr

DEPARTMENT OF THE ARMY
ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO 80022-2180

COPY

#5

REPLY TO
ATTENTION OF:

January 21, 1988

Fire Prevention
Branch

Chief Ballard
Training Division
Denver Fire Department
745 West Colfax Ave.
Denver, Colorado 80204

Dear Chief Ballard:

Per our telephone conversation on January 21 the attached Reciprocal Agreement for Firefighting Assistance In the Event of an Aircraft Crash is submitted for review.

Sincerely,

Martin L. Wittig
Martin L. Wittig
Chief, Fire Prevention Branch

Encl
as
CF:
C, Fac Engr Div

RECIPROCAL AGREEMENT
FOR
FIREFIGHTING ASSISTANCE
IN THE EVENT OF AN AIRCRAFT CRASH

The United States of America, the owner of Rocky Mountain Arsenal, and the City and County of Denver, the owner of Stapleton International Airport, enter into the following contract. In this contract's text, the United States of America is referred to as the United States, Rocky Mountain Arsenal as the Arsenal, the City and County of Denver as Denver, and Stapleton International Airport as the Airport.

ARTICLE I

In consideration of Denver's promises, the United States promises that:

A. Subject to applicable federal laws and Army Regulations, the Arsenal will, upon demand, by proper Airport Authority, provide to the Airport whatever Arsenal Fire Prevention Division personnel and equipment are available to fight fires on the Airport property, caused by aircraft crashes. The Arsenal reserves the right to determine in good faith which Fire Prevention Division personnel and equipment are needed elsewhere and, hence, are unavailable. The Chief, Fire Prevention Division or other Division official in charge of the Division at the time will make the determination of availability.

B. The Arsenal will train the Airport's personnel in the proper methods of protection from and detoxification of toxic agents stored within the Arsenal's boundaries. The training will not include information which has a confidential, secret, or top secret classification. Live agents will not be used in the training;

C. The Arsenal will obtain and maintain for the Airport Fire Department's personnel the same type of equipment and supplies the Arsenal maintains for its own personnel to protect them from the harmful physiological effects of toxic agents stored within the Arsenal's boundaries. In the event of an aircraft crash upon the Arsenal, the Arsenal will make the equipment and supplies available to the Airport personnel;

D. The Arsenal will maintain workmen's compensation for its own employees. The Arsenal will save Denver and the Airport harmless from any damages Arsenal employees might claim against Denver and/or the Airport for property loss, property damage, personal injury, or death the employees might suffer in the course of this contract's performance; and

E. The United States and the Arsenal hereby waive any cause of action they may acquire against Denver and/or the Airport for property loss, property damage, personal injury, or death occurring in the course of this contract's performance.

ARTICLE II

In consideration of the United States' promises, Denver promises that:

A. Upon demand by proper Arsenal authority, Denver will provide to the Arsenal whatever Denver emergency, rescue, and firefighting personnel and equipment are available to fight fires on the Arsenal property, caused by aircraft crashes. Denver reserves the right to determine in good faith which Denver personnel and equipment are needed elsewhere and, hence, are unavailable. The Chief, Denver Fire Department or other Department official in charge of the Department at the time will make the determination of availability;

B. The Airport will train the Arsenal Fire Prevention Division's personnel in the proper methods of using the Division's equipment and personnel to fight fires caused by aircraft crashes;

C. Denver will maintain workmen's compensation for its own employees. Denver will save the United States and the Arsenal harmless from any damages Denver employees might claim against the United States and/or the Arsenal for property loss, property damage, personal injury, or death the employees might suffer in the course of this contract's performance; and

D. Denver and the Airport hereby waive any cause of action they may acquire against the United States and/or the Arsenal for property loss, property damage, personal injury, or death occurring in the course of this contract's performance.

ARTICLE III

The proper Arsenal authorities to demand assistance from the Airport will be the Commanding Officer, the Staff Duty Officer, the Chief of the Fire Prevention Division, or a person acting on behalf of one of these three persons and within the scope of his authority. The authority will make the demand for assistance by telephoning the Airport's Federal Aviation Administration Control Tower. (The Tower's current telephone number is ~~297-3105~~ 398-3917 — Per TAIP CFR 9 May 84).

ARTICLE IV

The proper Airport authorities to demand assistance from the Arsenal will be the Officer in Charge of the emergency, the Manager of Safety, or a person acting on behalf of one of these two persons and within the scope of his authority.

ARTICLE V

When the Denver personnel receive a report that an aircraft has crashed upon the Arsenal, notification will be made immediately to the Arsenal's Security Police Communications Desk. (The telephone number for the Police Communications Desk is 289-6369 ([illegible] furnished [illegible] - 9 MAY 84) ~~288-9711, extension 211~~). This notification will include a description of the location of the crash, and what, if any, emergency equipment or assistance is required from the Arsenal.

Denver's emergency, rescue, and firefighting personnel are hereby granted permission to:

A. cut through the Arsenal fence, and

B. begin their respective emergency, rescue, and firefighting operations in any unrestricted area upon the Arsenal.

If they receive a report that an aircraft has crashed upon the Arsenal, the Chief of the Arsenal's Fire Prevention Division, or a person acting on his behalf and within the scope of his authority, shall assume command of the operations upon his arrival at the scene of the accident.

ARTICLE VI

The Denver personnel will not be granted access to Arsenal areas designated restricted unless the Arsenal's Commanding Officer or his designee approves such access. The Commanding Officer or his designee will approve such access only if there has been an aircraft crash on the Arsenal which requires Denver personnel to enter the restricted area. Denver personnel will not be permitted to enter the restricted area unless the Chief of the Arsenal's Fire Prevention Division, or his designee, accompanies them and assumes command of the operations. In addition, the Denver personnel must be accompanied within a restricted area by the person(s) designated by the Arsenal's Commanding Officer, the Staff Duty Officer, the Chief of the Fire Prevention Division, or a designee of any of these persons, who will:

A. provide the Denver personnel with whatever safety advice he deems appropriate, and

B. take whatever lawful steps he deems appropriate to ensure that the Denver personnel do not violate the security of any classified material.

ARTICLE VII

When this contract is executed, the Arsenal will deliver to the Chief of the Denver Fire Department a map, identifying the restricted areas on the Arsenal. If

New Map furnished 9 May 84

A. any area identified on the map as a restricted area is subsequently declared unrestricted, or

B. any area identified on the map as an unrestricted area is subsequently declared restricted,

the Arsenal will promptly notify the Chief of the Denver Fire Department.

ARTICLE VIII

This contract does not protect any member of a Fire Department other than the Denver Fire Department who volunteers to provide aid outside his district unless the Airport Officer in Charge of the emergency requests that the fireman render his aid.

ARTICLE IX

This contract will continue in force and effect until one of the Parties terminates the contract. With or without cause, a Party may terminate this contract by delivering to the other Party a written Notice of Termination; the termination will be effective thirty (30) days after the date the latter party actually receives the Notice. If the United States wishes to terminate this contract, the United States must mail to the Denver Manager of Safety a Notice, signed by the Arsenal's Commanding Officer. If Denver wishes to terminate this contract, Denver must mail to the Arsenal's Commanding Officer a Notice, signed by the Manager of Safety.

ARTICLE X

This contract does not affect any United States Government facilities other than the facilities located at Rocky Mountain Arsenal.

ARTICLE XI

Neither Party has a duty to pay the other Party for the support and assistance provided under this contract. The mutual promises and assistance, which this contract provides for, are the sole consideration for this contract.

In the capacity shown below their signature, the following persons executed this contract on DEC 31 1972.

UNITED STATES OF AMERICA

By ______________________
Commanding Officer
/Rocky Mountain Arsenal

CITY AND COUNTY OF DENVER

By ______________________
Mayor

RECOMMENDED AND APPROVED:

ATTEST:

____
Clerk and Recorder, Ex-Officio
Clerk of the City and County
of Denver

By ______________________
Manager of Public Works

By ______________________
Manager of Safety

APPROVED:

By ______________________
Director of Aviation

____
Attorney for the City and County
of Denver

COUNTERSIGNED AND REGISTERED

By ______________________
Assistant City Attorney

By ______________________
Auditor

Ord #664/72

#35

RECIPROCAL AGREEMENT FOR

FIREFIGHTING ASSISTANCE

THIS AGREEMENT, made and entered into this 8th day of March 1988, by and between the following jurisdictions:

1) The Fire Departments of The Cities of Thornton, Westminster; the Town of Federal Heights; and the Fire Protection Districts of North Washington, South Adams County, Southwest Adams County, West Adams County, Brighton, Bennett, Byers, and Strasburg; and the Adams County Sheriff's Department, collectively known as "Adams County Fire Departments Mutual Aid System, Incorporated"; and

2) Rocky Mountain Arsenal

W I T N E S S E T H:

WHEREAS, the parties hereto desire to provide for maximum fire protection to those persons and property under their respective jurisdictions by a system of mutual aid, and,

WHEREAS, it is the desire of the parties hereto to cooperate with each other in order to provide increased fire protection within and without their respective jurisdictions, and,

WHEREAS, the parties hereto are of the opinion that an agreement providing for mutual aid between the respective jurisdictions in the event of an emergency is deemed to be in the best interest of each and will result in improved fire protection,

NOW THEREFORE, in consideration of the mutual covenants, agreements, and promises hereinafter set forth by each party to the other, the parties hereto agree as follows:

1. Each of the parties hereto covenants, agrees and commits itself to assist

the other or others within the limits of its fire fighting capabilities and applicable laws and regulations upon request of any of the other parties hereto as hereinafter provided in response to emergencies requiring fire fighting aid and assistance.

2. The Chief Officers, Command Officers or any other person acting as a duly authorized agent within the scope of his or her authority for any of the signatories shall be authorized to make said request for fire fighting assistance from the member jurisdictions. The request for aid shall be made through the fire dispatching system of the respective jurisdictions.

3. It is understood by the parties hereto that only those fire fighters who are specifically authorized by their Command Officer or Jurisdiction to aid in fire fighting in another jurisdiction in response to each request, separately made, shall be deemed to be in the service or employ of the responding agency. The Jurisdiction requesting aid assumes no responsibility for firefighters who arrive or assist in the fire fighting without having been directed to do so by their immediate Command Officer.

4. It is further understood and agreed by the parties hereto that each party hereto specifically waives and releases any and all rights, claims and demands it may have against a signatory hereto for compensation for any loss, damage to personal property or equipment of said responding party and to any claim for personal injury, death or claims arising out of or occurring as a result of or during the performance of this Agreement or any part thereof. It is understood that it is the intention of the parties who are signatories under this Agreement that each Jurisdiction shall remain liable for and responsible for its own equipment and personnel to the same extent as though said services were being performed in its own Jurisdiction. It is further agreed by the parties hereto

that each party shall furnish, provide and pay for its own representation in the event of any claim by or against it by any person or any of its own members, agents, or employees.

5. It is further understood and agreed by the parties hereto that the requests for aid shall be initiated by the Chief Officers, Command Officers or any other person acting as a duly authorized agent. It is understood that each party hereto shall first provide fire protection to protect life and property within its territorial boundaries, under the circumstances, before committing fire fighting equipment and personnel to aid a neighboring fire department. The decision to grant or deny aid to a member fire department shall be the sole responsibility of the Chief Officers, Command Officer or person acting as such at the time that said request is made, and response thereto shall be at the sole discretion of such person; that neither jurisdiction, individual or department, shall be responsible or liable for either the type of aid which is furnished or the denial of aid or the response time or any other matter connected with the granting or denial of aid to a requesting jurisdiction.

6. It is agreed by the parties hereto that each party shall make its best efforts to furnish useful aid to any jurisdiction requesting the same, and that the respective fire departments may be called upon to furnish equipment and personnel to cover fire jurisdictions responding to a request for aid. Said assistance may be furnished to all or a portion of their jurisdiction in the event that one or more of the pieces of equipment or personnel are responding to a call for mutual aid from one of the neighboring departments.

7. It is further agreed by the parties hereto that the sole consideration for this agreement is the promise of each party hereto to render aid to the other under the terms, conditions and agreements herein provided. No reimbursement of any costs

incurred in performance of this agreement will be provided any requested/responding party.

8. It is further understood and agreed by the parties hereto, that in the event of a breakdown in law and order, civil authorities, i.e., municipal, county and state, are responsible for the protection of fire fighting crews and equipment provided by Rocky Mountain Arsenal. Failure to recognize this responsibility and/or provide adequate protection will be grounds for refusal to commit resources or for withdrawal of resources already committed. Fire fighting equipment or personnel of Rocky Mountain Arsenal will not be utilized for riot control.

9. It is agreed by the parties hereto that this Agreement shall remain in full force and effect until revoked by any one party hereto by written notice to the Board of Directors of the Adams County Fire Department Mutual Aid System, Incorporated or the Commander, Rocky Mountain Arsenal, as appropriate, which notice shall be given thirty (30) days in advance of the effective date of termination.

IN WITNESS WHEREOF, the undersigned have hereunto set their hands and seals this 8th day of March 1988.

For Rocky Mountain Arsenal:

David L. Heim

DAVID L. HEIM
Commander's Representative

James G. Gilliam

JAMES G. GILLIAM
General Attorney

Martin L. Wittig

MARTIN L. WITTIG
Chief, Fire Prevention Branch

For the Adams County Fire Departments Mutual Aid System, Inc:

Ricky A. Teter

RICK A. TETER
President

John O'Hayre

JOHN O'HAYRE
Vice President

George Mazzotti

GEORGE MAZZOTTI
Treasurer

DEPARTMENT OF THE ARMY
FITZSIMONS ARMY MEDICAL CENTER
AURORA, COLORADO 80045-5001

REPLY TO
ATTENTION OF

#5

HSHG-LOO (5-8a) 29 April 1988

MEMORANDUM FOR: Commander, Rocky Mountain Arsenal, ATTN: SMCRM-RM, Commerce City, CO 80022-2180

SUBJECT: Memorandum of Agreement for Mutual Aid in Fire Protection

1. The enclosed Memorandum of Agreement between Fitzsimons Army Medical Center and Rocky Mountain Arsenal, SAB, is forwarded for your review and approval. There are no substantial changes to the previous agreement.

2. If you concur with the stated provisions, please sign and date the agreement on page 3 and return it to the Directorate of Logistics, ATTN: HSHG-LOO, for finalization and distribution.

FOR THE COMMANDER:

Encl

WILLIAM H. HAMES, JR.
COL, MS
Director of Logistics

MEMORANDUM OF AGREEMENT

BETWEEN

FITZSIMONS ARMY MEDICAL CENTER
AURORA, COLORADO 80045-5000

AND

ROCKY MOUNTAIN ARSENAL
COMMERCE CITY, COLORADO 80022-2180

1 MARCH 1988

1. <u>PURPOSE:</u> The purpose of this agreement is to define the administrative and logistical support necessary to secure to each party of the agreement the benefits of mutual aid in fire prevention, in the protection of life and property from fire, and in firefighting.

2. <u>AUTHORITY:</u> This agreement is entered into both parties hereto acting pursuant to the authority of the Act of May 27, 1955 (69 Stat. 66), and US Code (USC 1856). This agreement has been prepared in accordance with the appropriate regulations. Authority to execute this agreement on behalf of each party thereto is vested in the Commander, Fitzsimons Army Medical Center and the Commander, Rocky Mountain Arsenal.

3. <u>EFFECTIVE DATE AND TERMINATION.</u>

a. This Memorandum of Agreement shall become effective 15 March 1988, upon approval and signature by authorized representatives of the Commander, Fitzsimons Army Medical Center and the Commander, Rocky Mountain Arsenal, respectively.

b. This Memorandum will terminate 15 March 1990, unless suspended or renewed prior to that date. <u>This agreement may be continued after April 1979, with the mutual consent of both parties.</u> It will be reviewed by the supplier and receiver annually and updated, modified, revised, renegotiated, or terminated, as necessary. It may be updated, modified, revised, or renegotiated at any time within its duration by mutual consent in writing by both parties to accommodate changed conditions and circumstances. It may be terminated by either party upon ~~sixty (60)~~ 60 days written notice to the other party.

4. <u>FUNDING.</u> No party shall be reimbursed by any other party for any costs incurred pursuant to this agreement. Each party waives all claims against the other party for compensation for any loss, damage, personal injury, or death occurring as a consequence of the performance of this agreement.

5. <u>RESOURCES.</u> No additional manpower is required by the supplier to furnish the support described in this agreement. No resources are to be transferred to the supplying activity under the terms of this agreement.

6. <u>MOBILIZATION/EMERGENCIES.</u> This Memorandum of Agreement will remain in effect in the event of mobilization and/or other emergency conditions that may arise. It may be reviewed at that time and modified unilaterally by the supplier, as required by existing conditions.

7. <u>DEFINITIONS.</u> For purposes of this Memorandum, the following definitions apply:

a. SUPPLIER: Fitzsimons Army Medical Center (FAMC), providing support services.

b. RECEIVER: Rocky Mountain Arsenal (RMA), receiving support/services.

8. REFERENCES. Army Regulation 420-90, Facilities Engineering Fire Protection, dated 1 February 1985.

9. GENERAL STIPULATIONS.

a. The receiver will comply with all applicable supplier regulations, directives, policies, and procedures and will support the supplier's ~~ac-tivities~~ activities as is appropriate to the terms of this agreement.

b. During the tenure of this agreement, the supplier will keep the receiver advised of plans and programs which will effect support requirements. Conversely, the receiver will advise the supplier of mission or other program~~s~~ changes that will affect the support provided under this agreement. Advisement will be recognized as official only when made in writing.

c. Any mission peculiar information necessary to support this agreement to include phone numbers, points of contact, and definition of the Chain of Command to be used in requesting aid, will be mutually furnished/exchanged independent of this agreement by the functional organizations involved.

10. FITZSIMONS ARMY MEDICAL CENTER RESPONSIBILITIES. Upon request to a representative of Fitzsimons Army Medical Center by a representative of the Rocky Mountain Arsenal, firefighting equipment and personnel of the FAMC fire department will be dispatched to any point within the area for which the RMA fire department normally provides fire protection as designated by the representative of the receiver's fire department.

11. ROCKY MOUNTAIN ARSENAL RESPONSIBILITIES. Upon a request to a representative of the Rocky Mountain Arsenal by a representative of the Fitzsimons Army Medical Center, firefighting equipment and personnel of the RMA fire department will be dispatched to any point within the area for which the FAMC fire department normally provides fire protection as designated by a representative of the supplier.

12. MUTUAL RESPONSIBILITIES. Aid furnished under the terms of this agreement is subject to the following conditions:

a. Any request for aid shall include a statement of the amount and type of equipment or personnel requested, and shall specify the location to which the equipment and personnel are to be dispatched. The amount and type of equipment and number of personnel furnished shall be determined by a representative of the responding organization.

b. The responding organization shall report to the officer in charge of the requesting organization at the location to which the equipment is dispatched, and shall be subject to the orders of that officer.

c. A responding organization shall be released by the requesting organization when the services of the responding organization are no longer required or when the responding organization is needed within the area for which it normally provides fire protection.

d. Either party to this agreement is under no obligation to respond to a call from the other party when conditions exist which would prevent response because of priority or responsibility in its own fire protection area.

13. <u>LEGAL SUFFICIENCY.</u> This Memorandum of Agreement has been reviewed by the Fitzsimons Army Medical Center Judge Advocate and found legally sufficient.

14. <u>SIGNATURE AUTHORITY.</u> Signed and agreed to above specified terms on the dates stated below.

FOR THE COMMANDER:
Fitzsimons Army Medical Center
Aurora, Colorado 80045-5000

Ronald C. Jones

DATE

RONALD C. JONES
Colonel, MC
Chief of Staff

FOR THE COMMANDER:
Rocky Mountain Arsenal
Commerce City, Colorado 80022-2180

9 AUGUST 1988

DATE

Edward R. Ettner, Jr.

EDWARD R. ETTNER, JR.
Major, CmlC, Commander

APPENDIX E

HAZARDOUS SUBSTANCE REPORTABLE QUANTITIES

EPA DESIGNATION, REPORTABLE QUANTITIES, AND NOTIFICATION REQUIREMENTS FOR HAZARDOUS SUBSTANCES UNDER CERCLA

(40 CFR 302; 50 FR 13474, April 4, 1985, Effective July 3, 1985; Amended by 51 FR 34541, September 29, 1986; Corrected by 51 FR 45767, December 22, 1986; Amended by 53 FR 35420, September 13. 1988; 53 FR 43881, 43883, October 31, 1988; 54 FR 22538, May 24, 1989; 54 FR 33425, 33448, August 14, 1989; 54 FR 41407, October 6, 1989; Corrected by 54 FR 47022, November 8, 1989; Amended by 54 FR 50977, December 11, 1989; 54 FR 53062, December 27, 1989; 55 FR 5342, February 14, 1990; 55 FR 11862, March 29, 1990; 55 FR 18505, May 2, 1990; 55 FR 22683, June 1, 1990; Corrected by 55 FR 26986, June 29, 1990; Amended by 55 FR 30185, July 24, 1990; 55 FR 46396, November 2, 1990)

[*Editor's note:* EPA's notice clarifying toxicity characteristics for identifying new hazardous waste management systems issued September 27, 1990, (55 FR 39409) is published in Federal Laws/Index—1, p. 21:4691.]

[*Editor's note:* EPA October 3, 1990, issued guidelines designed to encourage procuring agencies to use products containing materials recovered from solid waste (55 FR 40384). See Federal Laws/Index — 1, p. 21:4701.]

PART 302—DESIGNATION, REPORTABLE QUANTITIES, AND NOTIFICATION

Sec.
302.1 Applicability.
302.2 Abbreviations.
302.3 Definitions.
302.4 Designation of hazardous substances.
302.5 Determination of reportable quantities.
302.6 Notification requirements.
302.7 Penalties.
302.8 Continuous releases.

Authority: 42 U.S.C. 9602; 33 U.S.C. 1321 and 1361.

[Revised by 54 FR 41407, October 6, 1989; 54 FR 50977, December 11, 1989; 54 FR 53062, December 27, 1989; 55 FR 5342, February 14, 1990; 55 FR 18505, May 2, 1990; 55 FR 22683, June 1, 1990; 55 FR 30185, July 24, 1990; 55 FR 46396, November 2, 1990]

§ 302.1 Applicability.

This regulation designates under section 102(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("the Act") those substances in the statutes referred to in section 101(14) of the Act, identifies reportable quantities for these substances, and sets forth the notification requirements for releases of these substances. This regulation also sets forth reportable quantities for hazardous substances designated under section 311(b)(2)(A) of the Clean Water Act.

§ 302.2 Abbreviations.

CASRN = Chemical Abstracts Service Registry Number
RCRA = Resource Conservation and Recovery Act of 1976, as amended
lb = pound
kg = kilogram
RQ = reportable quantity

§ 302.3 Definitions.

As used in this part, all terms shall have the meaning set forth below:

"The Act", "CERCLA", or "Superfund" means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Pub. L. 96-510);

"Administrator" means the Administrator of the United States Environmental Protection Agency ("EPA");

"Consumer product" shall have the meaning stated in 15 U.S.C. 2052;

"Environment" means (1) the navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Fishery Conservation and Management Act of 1976, and (2) any other surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States;

"Facility" means (1) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (2) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel;

"Hazardous substance" means any substance designated pursuant to 40 CFR Part 302;

"Hazardous waste" shall have the meaning provided in 40 CFR 261.3;

"Navigable waters" or "navigable waters of the United States means waters of the United States, including the territorial seas;

"Offshore facility" means any facility of any kind located in, on, or under, any of the navigable waters of the United States, and any facility of any kind which is subject to the jurisdiction of the United States and is located in, on, or under any other waters, other than a vessel or a public vessel;

"Onshore facility" means any facility (including, but not limited to, motor vehicles and rolling stock) of any kind located in, on, or under, any land or non-navigable waters within the United States;

"Person" means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial,

entity, United States Government, State, municipality, commission, political subdivision of a State, or any interstate body;

"Release" means any spilling, leaching, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, but excludes (1) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons, (2) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, (3) release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act, or for the purposes of section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act or any other response action, any release of source, byproduct, or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978, and (4) the normal application of fertilizer;

"Reportable quantity" means that quantity, as set forth in this part, the release of which requires notification pursuant to this part;

"United States" include the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Commonwealth of the Northern Marianas, and any other territory or possession over which the United States has jurisdiction; and

"Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.

§ 302.4 Designation of hazardous substances.

(a) *Listed hazardous substances.* The elements and compounds and hazardous wastes appearing in Table 302.4 are designated as hazardous substances under section 102(a) of the Act.

(b) *Unlisted hazardous substances.* A solid waste, as defined in 40 CFR 261.2, which is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b), is a hazardous substance under section 101(14) of the Act if it exhibits any of the characteristics identified in 40 CFR 261.20 through 261.24.

NOTE: The numbers under the column headed "CASRN" are the Chemical Abstracts Service Registry Numbers for each hazardous substance. Other names by which each hazardous substance is identified in other statutes and their implementing regulations are provided in the "Regulatory Synonyms" column. The "Statutory RQ" column lists the RQs for hazardous substances established by section 102 of CERCLA. The "Statutory Code" column indicates the statutory source for designating each substance as a CERCLA hazardous substance: "1" indicates that the statutory source is section 311(b)(4) of the Clean Water Act, "2" indicates that the source is section 307(a) of the Clean Water Act, "3" indicates that the source is section 112 of the Clean Air Act, and "4" indicates that the source is RCRA section 3001. The "RCRA Waste Number" column provides the waste identification numbers assigned to various substances by RCRA regulations. The column headed "Category" lists the code letters "X," "A," "B," "C," and "D," which are associated with reportable quantities of 1, 10, 100, 1000, and 5000 pounds, respectively. The "Pounds (kg)" column provides the reportable quantity for each hazardous substance in pounds and kilograms.

TABLE 302.4 — LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Acenaphthene	83329		1 *	2		B	100 (45.4)
Acenaphthylene	208968		1 *	2		D	5000 (2270)
Acetaldehyde	75070	Ethanol	1000	1,4	U001	C	1000 (454)
Acetaldehyde, chloro-	107200	Chloroacetaldehyde	1 *	4	P023	C	1000 (454)
Acetaldehyde, trichloro-	75876	Chloral	1 *	4	U034	D	5000 (2270)
Acetamide, N-(aminothioxomethyl)-	591082	1-Acetyl-2-thiourea	1 *	4	P002	C	1000 (454)
Acetamide, N-(4-ethoxyphenyl)-	62442	Phenacetin	1 *	4	U187	B	100 (45.4)
Acetamide, 2-fluoro-	640197	Fluoroacetamide	1 *	4	P057	B	100 (45.4)
Acetamide, N-9H-fluoren-2-yl-	53963	2-Acetylaminofluorene	1 *	4	U005	X	1 (0.454)
Acetic acid	64197		1000	1		D	5000 (2270)
Acetic acid (2,4-dichlorophenoxy)-	94757	2,4-D Acid 2,4-D, salts and esters	100	1,4	U240	B	100 (45.4)
Acetic acid, lead(2+) salt	301042	Lead acetate	5000	1,4	U144		‡
Acetic acid, thallium(1+) salt	563688	Thallium(I) acetate	1 *	4	U214	B	100 (45.4)
Acetic acid, (2,4,5-trichlorophenoxy)	93765	2,4,5-T 2,4,5-T acid	100	1,4	U232	C	1000 (454)
Acetic acid, ethyl ester	141786	Ethyl acetate	1 *	4	U112	D	5000 (2270)
Acetic acid, fluoro-, sodium salt	62748	Fluoroacetic acid, sodium salt	1 *	4	P058	A	10 (4.54)
Acetic anhydride	108247		1000	1		D	5000 (2270)
Acetone	67641	2-Propanone	1 *	4	U002	D	5000 (2270)
Acetone cyanohydrin	75865	Propanenitrile, 2-hydroxy-2-methyl-2-Methyllactonitrile	10	1,4	P069	A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Acetonitrile	75058		1*	4	U003	D	5000 (2270)
Acetophenone	98862	Ethanone, 1-phenyl-	1*	4	U004	D	5000 (2270)
2-Acetylaminofluorene	53963	Acetamide, N-9H-fluoren-2-yl-	1*	4	U005	X	1 (0.454)
Acetyl bromide	506967		5000	1		D	5000 (2270)
Acetyl chloride	75365		5000	1,4	U006	D	5000 (2270)
1 Acetyl-2-thiourea	591082	Acetamide, N-(aminothioxomethyl)-	1*	4	P002	C	1000 (454)
Acrolein	107028	2-Propenal	1	1,2,4	P003	X	1 (0.454)
Acrylamide	79061	2-Propenamide	1*	4	U007	D	5000 (2270)
Acrylic acid	79107	2-Propenoic acid	1*	4	U008	D	5000 (2270)
Acrylonitrile	107131	2-Propenenitrile	100	1,2,4	U009	B	100 (45.4)
Adipic acid	124049		5000	1		D	5000 (2270)
Aldicarb	116063	Propanal, 2-methyl-2-(methylthio)-,O-[(methylamino)carbonyl]oxime	1*	4	P070	X	1 (0.454)
Aldrin	309002	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-	1	1,2,4	P004	X	1 (0.454)
Allyl alcohol	107186	2-Propen-1-ol	100	1,4	P005	B	100 (45.4)
Allyl chloride	107051		1000	1		C	1000 (454)
Aluminum phosphide	20859738		1*	4	P006	B	100 (45.4)
Aluminum sulfate	10043013		5000	1		D	5000 (2270)
5-(Aminomethyl) 3-isoxazolol	2763964	Muscimol 3(2H)-Isoxazolone, 5-(aminomethyl)-	1*	4	P007	C	1000 (454)
4-Aminopyridine	504245	4-Pyridinamine	1*	4	P008	C	1000 (454)
Amitrole	61825	1H-1,2,4-Triazol-3-amine	1*	4	U011	A	10 (4.54)
Ammonia	7664417		100	1		B	100 (45.4)
Ammonium acetate	631618		5000	1		D	5000 (2270)
Ammonium benzoate	1863634		5000	1		D	5000 (2270)
Ammonium bicarbonate	1066337		5000	1		D	5000 (2270)
Ammonium bichromate	7789095		1000	1		A	10 (4.54)
Ammonium bifluoride	1341497		5000	1		B	100 (45.4)
Ammonium bisulfite	10192300		5000	1		D	5000 (2270)
Ammonium carbamate	1111780		5000	1		D	5000 (2270)
Ammonium carbonate	506876		5000	1		D	5000 (2270)
Ammonium chloride	12125029		5000	1		D	5000 (2270)
Ammonium chromate	7788989		1000	1		A	10 (4.54)
Ammonium citrate, dibasic	3012655		5000	1		D	5000 (2270)
Ammonium fluoborate	13826830		5000	1		D	5000 (2270)
Ammonium fluoride	12125018		5000	1		B	100 (45.4)
Ammonium hydroxide	1336216		1000	1		C	1000 (454)
Ammonium oxalate	6009707		5000	1		D	5000 (2270)
	5972736						
	14258492						
Ammonium picrate	131748	Phenol, 2,4,6-trinitro-, ammonium salt	1*	4	P009	A	10 (4.54)
Ammonium silicofluoride	16919190		1000	1		C	1000 (454)
Ammonium sulfamate	7773060		5000	1		D	5000 (2270)
Ammonium sulfide	12135761		5000	1		B	100 (45.4)
Ammonium sulfite	10196040		5000	1		D	5000 (2270)
Ammonium tartrate	14307438		5000	1		D	5000 (2270)
	3164292						
Ammonium thiocyanate	1762954		5000	1		D	5000 (2270)
Ammonium vanadate	7803556	Vanadic acid, ammonium salt	1*	4	P119	C	1000 (454)
Amyl acetate	628637		1000	1		D	5000 (2270)
iso-Amyl acetate	123922						
sec-Amyl acetate	626380						
tert-Amyl acetate	625161						
Aniline	62533	Benzenamine	1000	1,4	U012	D	5000 (2270)
Anthracene	120127		1*	2		D	5000 (2270)
Antimony ††	7440360		1*	2		D	5000 (2270)
ANTIMONY AND COMPOUNDS	N.A.		1*	2			**
Antimony pentachloride	7647189		1000	1		C	1000 (454)
Antimony potassium tartrate	28300745		1000	1		B	100 (45.4)
Antimony tribromide	7789619		1000	1		C	1000 (454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Antimony trichloride	10025919		1000	1		C	1000 (454)
Antimony trifluoride	7783564		1000	1		C	1000 (454)
Antimony trioxide	1309644		5000	1		C	1000 (454)
Argentate(1-), bis(cyano-C)-, potassium	506616	Potassium silver cyanide	1*	4	P099	X	1 (0.454)
Aroclor 1016	12674112	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1221	11104282	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1232	11141165	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1242	53469219	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1248	12672296	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1254	11097691	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1260	11096825	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Arsenic ††	7440382		1*	2,3		X	1 (0.454)
Arsenic acid	1327522 7778394	Arsenic acid H3AsO4	1*	4	P010	X	1 (0.454)
Arsenic acid H3AsO4	1327522 7778394	Arsenic acid	1*	4	P010	X	1 (0.454)
ARSENIC AND COMPOUNDS	N.A.		1*	2			**
Arsenic disulfide	1303328		5000	1		X	1 (0.454)
Arsenic oxide As2O3	1327533	Arsenic trioxide	5000	1,4	P012	X	1 (0.454)
Arsenic oxide As2O5	1303282	Arsenic pentoxide	5000	1,4	P011	X	1 (0.454)
Arsenic pentoxide	1303282	Arsenic oxide As2O5	5000	1,4	P011	X	1 (0.454)
Arsenic trichloride	7784341		5000	1		X	1 (0.454)
Arsenic trioxide	1327533	Arsenic oxide As2O3	5000	1,4	P012	X	1 (0.454)
Arsenic trisulfide	1303339		5000	1		X	1 (0.454)
Arsine, diethyl-	692422	Diethylarsine	1*	4	P038	X	1 (0.454)
Arsinic acid, dimethyl-	75605	Cacodylic acid	1*	4	U136	X	1 (0.454)
Arsonous dichloride, phenyl-	696286	Dichlorophenylarsine	1*	4	P036	X	1 (0.454)
Asbestos †††	1332214		1*	2,3		X	1 (0.454)
Auramine	492808	Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-	1*	4	U014	B	100 (45.4)
Azaserine	115026	L-Serine, diazoacetate (ester)	1*	4	U015	X	1 (0.454)
Aziridine	151564	Ethylenimine	1*	4	P054	X	1 (0.454)
Aziridine, 2-methyl-	75558	1,2-Propylenimine	1*	4	P067	X	1 (0.454)
Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-,[1aS-(1aalpha,8beta,8aalpha,8balpha)]-.	50077	Mitomycin C	1*	4	U010	A	10 (4.54)
Barium cyanide	542621		10	1,4	P013	A	10 (4.54)
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	56495	3-Methylcholanthrene	1*	4	U157	A	10 (4.54)
Benz[c]acridine	225514		1*	4	U016	B	100 (45.4)
Benzal chloride	98873	Benzene, dichloromethyl-	1*	4	U017	D	5000 (2270)
Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-.	23950585	Pronamide	1*	4	U192	D	5000 (2270)
Benz[a]anthracene	56553	Benzo[a]anthracene 1,2-Benzanthracene	1*	2,4	U018	A	10 (4.54)
1,2-Benzanthracene	56553	Benz[a]anthracene Benzo[a]anthracene	1*	2,4	U018	A	10 (4.54)
Benz[a]anthracene, 7,12-dimethyl-	57976	7,12-Dimethylbenz[a]anthracene	1*	4	U094	X	1 (0.454)
Benzenamine	62533	Aniline	1000	1,4	U012	D	5000 (2270)
Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-	492808	Auramine	1*	4	U014	B	100 (45.4)
Benzenamine, 4-chloro-	106478	p-Chloroaniline	1*	4	P024	C	1000 (454)
Benzenamine, 4-chloro-2-methyl-, hydrochloride	3165933	4-Chloro-o-toluidine, hydrochloride	1*	4	U049	B	100 (45.4)
Benzenamine, N,N-dimethyl-4-(phenylazo-)	60117	p-Dimethylaminoazobenzene	1*	4	U093	A	10 (4.54)
Benzenamine, 2-methyl-	95534	o-Toluidine	1*	4	U328	B	100 (45.4)
Benzenamine, 4-methyl-	106490	p-Toluidine	1*	4	U353	B	100 (45.4)
Benzenamine, 4,4'-methylenebis(2-chloro-	101144	4,4'-Methylenebis(2-chloroaniline)	1*	4	U158	A	10 (4.54)
Benzenamine, 2-methyl-, hydrochloride	636215	o-Toluidine hydrochloride	1*	4	U222	B	100 (45.4)
Benzenamine, 2-methyl-5-nitro-	99558	5-Nitro-o-toluidine	1*	4	U181	B	100 (45.4)
Benzenamine, 4-nitro-	100016	p-Nitroaniline	1*	4	P077	D	5000 (2270)
Benzene	71432		1000	1,2,3,4	U019	A	10 (4.54)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	510156	Chlorobenzilata	1*	4	U038	A	10 (4.54)
Benzene, 1-bromo-4-phenoxy-	101553	4-Bromophenyl phenyl ether	1*	2,4	U030	B	100 (45.4)
Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	305033	Chlorambucil	1*	4	U035	A	10 (4.54)
Benzene, chloro-	108907	Chlorobenzene	100	1,2,4	U037	B	100 (45.4)
Benzene, chloromethyl-	100447	Benzyl chloride	100	1,4	P028	B	100 (45.4)
Benzenediamin, ar-methyl-	95807 496720 823405	Toluenediamine	1*	4	U221	A	10 (4.54)
1,2-Benzenedicarboxylic acid, dioctyl ester	117840	Di-n-octyl phthalate	1*	2,4	U107	D	5000 (2270)
1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)]-ester.	117817	Bis (2-ethylhexyl)phthalate Diethylhexyl phthalate	1*	2,4	U028	B	100 (45.4)
1,2-Benzenedicarboxylic acid, dibutyl ester	84742	Di-n-butyl phthalate Dibutyl phthalata n-Butyl phthalate	100	1,2,4	U069	A	10 (4.54)
1,2-Benzenedicarboxylic acid, diethyl ester	84662	Diethyl phthalate	1*	2,4	U088	C	1000 (454)
1,2-Benzenedicarboxylic acid, dimethyl ester	131113	Dimethyl phthalate	1*	2,4	U102	D	5000 (2270)
Benzene, 1,2-dichloro-	95501	o-Dichlorobenzene 1,2-Dichlorobenzene	100	1,2,4	U070	B	100 (45.4)
Benzene, 1,3-dichloro-	541731	m-Dichlorobenzene 1,3-Dichlorobenzene	1*	2,4	U071	B	100 (45.4)
Benzene, 1,4-dichloro-	106467	p-Dichlorobenzene 1,4-Dichlorobenzene	100	1,2,4	U072	B	100 (45.4)
Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	72548	DDD TDE 4,4' DDD	1	1,2,4	U060	X	1 (0.454)
Benzene, dichloromethyl-	98873	Benzal chloride	1*	4	U017	D	5000 (2270)
Benzene, 1,3-diisocyanatomethyl-	584849 91087 26471625	Toluene diisocyanate	1*	4	U223	B	100 (45.4)
Benzene, dimethyl	1330207	Xylene (mixed)	1000	1,4	U239	C	1000 (454)
m-Benzene, dimethyl	108383	m-Xylene					
o-Benzene, dimethyl	95476	o-Xylene					
p-Benzene, dimethyl	106423	p-Xylene					
1,3-Benzenediol	108463	Resorcinol	1000	1,4	U201	D	5000 (2270)
1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-	51434	Epinephrine	1*	4	P042	C	1000 (454)
Benzeneethanamine, alpha,alpha-dimethyl-	122098	alpha,alpha-Dimethylphenethylamine	1*	4	P046	D	5000 (2270)
Benzene, hexachloro-	118741	Hexachlorobenzene	1*	2,4	U127	A	10 (4.54)
Benzene, hexahydro-	110827	Cyclohexane	1000	1,4	U056	C	1000 (454)
Benzene, hydroxy-	108952	Phenol	1000	1,2,4	U188	C	1000 (454)
Benzene, methyl-	108883	Toluene	1000	1,2,4	U220	C	1000 (454)
Benzene, 2-methyl-1,3-dinitro-	606202	2,6-Dinitrotoluene	1000	1,2,4	U106	B	100 (45.4)
Benzene, 1-methyl-2,4-dinitro-	121142	2,4-Dinitrotoluene	1000	1,2,4	U105	A	10 (4.54)
Benzene, 1-methylethyl-	98828	Cumene	1*	4	U055	D	5000 (2270)
Benzene, nitro-	98953	Nitrobenzene	1000	1,2,4	U169	C	1000 (454)
Benzene, pentachloro-	608935	Pentachlorobenzene	1*	4	U183	A	10 (4.54)
Benzene, pentachloronitro-	82688	Pentachloronitrobenzene (PCNB)	1*	4	U185	B	100 (45.4)
Benzenesulfonic acid chloride	98099	Benzenesulfonyl chloride	1*	4	U020	B	100 (45.4)
Benzenesulfonyl chloride	98099	Benzenesulfonic acid chloride	1*	4	U020	B	100 (45.4)
Benzene, 1,2,4,5-tetrachloro-	95943	1,2,4,5-Tetrachlorobenzene	1*	4	U207	D	5000 (2270)
Benzenethiol	108985	Thiophenol	1*	4	P014	B	100 (45.4)
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	50293	DDT 4,4'DDT	1	1,2,4	U061	X	1 (0.454)
Benzene, 1,1'-(2,2,2-trichloroethylidene) bis[4-methoxy-	72435	Methoxychlor	1	1,4	U247	X	1 (0.454)
Benzene, (trichloromethyl)-	98077	Benzotrichloride	1*	4	U023	A	10 (4.54)
Benzene, 1,3,5-trinitro-	99354	1,3,5-Trinitrobenzene	1*	4	U234	A	10 (4.54)
Benzidine	92875	(1,1'-Biphenyl)-4,4'diamine	1*	2,4	U021	X	1 (0.454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	81072	Saccharin and salts	1*	4	U202	B	100 (45.4)
Benzo[a]anthracene	56553	Benz[a]anthracene 1,2-Benzanthracene	1*	2,4	U018	A	10 (4.54)
Benzo[b]fluoranthene	205992		1*	2		X	1 (0.454)
Benzo(k)fluoranthene	207089		1*	2		D	5000 (2270)
Benzo[j,k]fluorene	206440	Fluoranthene	1*	2,4	U120	B	100 (45.4)
1,3-Benzodioxole, 5-(1-propenyl)-	120581	Isosafrole	1*	4	U141	B	100 (45.4)
1,3-Benzodioxole,5-(2-propenyl)-	94597	Safrole	1*	4	U203	B	100 (45.4)
1,3-Benzodioxole, 5-propyl-	94586	Dihydrosafrole	1*	4	U090	A	10 (4.54)
Benzoic acid	65850		5000	1		D	5000 (2270)
Benzonitrile	100470		1000	1		D	5000 (2270)
Benzo [rst]pentaphene	189559	Dibenz[a,i]pyrene	1*	4	U064	A	10 (4.54)
Benzo[ghi]perylene	191242		1*	2		D	5000 (2270)
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations greater than 0.3%	81812	Warfarin, & salts, when present at concentrations greater than 0.3%	1*	4	P001	B	100 (45.4)
Benzo[a]pyrene	50328	3,4-Benzopyrene	1*	2,4	U022	X	1 (0.454)
3,4-Benzopyrene	50328	Benzo[a]pyrene	1*	2,4	U022	X	1 (0.454)
p-Benzoquinone	106514	2,5-Cyclohexadiene-1,4-dione	1*	4	U197	A	10 (4.54)
Benzotrichloride	98077	Benzene, (trichloromethyl)-	1*	4	U023	A	10 (4.54)
Benzoyl chloride	98884		1000	1		C	1000 (454)
1,2-Benzphenanthrene	218019	Chrysene	1*	2,4	U050	B	100 (45.4)
Benzyl chloride	100447	Benzene, chloromethyl-	100	1,4	P028	B	100 (45.4)
Beryllium ††	7440417	Beryllium dust ††	1*	2,3,4	P015	A	10 (4.54)
BERYLLIUM AND COMPOUNDS	N.A.		1*	2			**
Beryllium chloride	7787475		5000	1		X	1 (0.454)
Beryllium dust ††	7440417	Beryllium ††	1*	2,3,4	P015	A	10 (4.54)
Beryllium fluoride	7787497		5000	1		X	1 (0.454)
Beryllium nitrate	13597994 7787555		5000	1		X	1 (0.454)
alpha—BHC	319846		1*	2		A	10 (4.54)
beta—BHC	319857		1*	2		X	1 (0.454)
delta—BHC	319868		1*	2		X	1 (0.454)
gamma—BHC	58899	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1alpha,2alpha,3beta,4alpha,5alpha,6beta)- Hexachlorocyclohexane (gamma isomer) Lindane	1	1,2,4	U129	X	1 (0.454)
2,2'-Bioxirane	1464535	1,2:3,4-Diepoxybutane	1*	4	U085	A	10 (4.54)
(1,1'-Biphenyl)-4,4'diamine	92875	Benzidine	1*	2,4	U021	X	1 (0.454)
[1,1'-Biphenyl]-4,4'diamine,3,3'dichloro-	91941	3,3'-Dichlorobenzidine	1*	2,4	U073	X	1 (0.454)
[1,1'-Biphenyl]-4,4'diamine,3,3'dimethoxy-	119904	3,3'-Dimethoxybenzidine	1*	4	U091	B	100 (45.4)
[1,1'Biphenyl]-4,4'-diamine,3,3'-dimethyl-	119937	3,3'-Dimethylbenzidine	1*	4	U095	A	10 (4.54)
Bis (2-chloroethyl) ether	111444	Dichloroethyl ether Ethane,1,1'-oxybis[2-chloro-	1*	2,4	U025	A	10 (4.54)
Bis(2-chloroethoxy) methane	111911	Dichloromethoxy ethane Ethane, 1,1'-[methylenebis(oxy)]bis(2-chloro-	1*	2,4	U024	C	1000 (454)
Bis (2-ethylhexyl)phthalate	117817	Diethylhexyl phthalate 1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester	1*	2,4	U028	B	100 (45.4)
Bromoacetone	598312	2-Propanone, 1-bromo-	1*	4	P017	C	1000 (454)
Bromoform	75252	Methane, tribromo-	1*	2,4	U225	B	100 (45.4)
4-Bromophenyl phenyl ether	101553	Benzene, 1-bromo-4-phenoxy-	1*	2,4	U030	B	100 (45.4)
Brucine	357573	Strychnidin-10-one, 2,3-dimethoxy-	1*	4	P018	B	100 (45.4)
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87683	Hexachlorobutadiene	1*	2,4	U128	X	1 (0.454)
1-Butanamine, N-butyl-N-nitroso-	924163	N-Nitrosodi-n-butylamine	1*	4	U172	A	10 (4.54)
1-Butanol	71363	n-Butyl alcohol	1*	4	U031	D	5000 (2270)
2-Butanone	78933	Methyl ethyl ketone (MEK)	1*	4	U159	D	5000 (2270)
2-Butanone peroxide	1338234	Methyl ethyl ketone peroxide	1*	4	U160	A	10 (4.54)
2-Butanone, 3,3-dimethyl-1-(methylthio)-, O[(methylamino)carbonyl] oxime.	39196184	Thiofanox	1*	4	P045	B	100 (45.4)
2-Butenal	123739 4170303	Crotonaldehyde	100	1,4	U053	B	100 (45.4)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
2-Butene, 1,4-dichloro-	764410	1,4-Dichloro-2-butene	1*	4	U074	X	1 (0.454)
2-Butenoic acid, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-	303344	Lasiocarpine	1*	4	U143	A	10 (4.54)
Butyl acetate	123864		5000	1		D	5000 (2270)
iso-Butyl acetate	110190						
sec-Butyl acetate	105464						
tert-Butyl acetate	540885						
n-Butyl alcohol	71363	1-Butanol	1*	4	U031	D	5000 (2270)
Butylamine	109739		1000	1		C	1000 (454)
iso-Butylamine	78819						
sec-Butylamine	513495 13952846						
tert-Butylamine	75649						
Butyl benzyl phthalate	85687		1*	2		B	100 (45.4)
n-Butyl phthalate	84742	Di-n-butyl phthalate Dibutyl phthalate 1,2-Benzenedicarboxylic acid, dibutyl ester	100	1,2,4	U069	A	10 (4.54)
Butyric acid	107926		5000	1		D	5000 (2270)
iso-Butyric acid	79312						
Cacodylic acid	75605	Arsinic acid, dimethyl-	1*	4	U136	X	1 (0.454)
Cadmium ††	7440439		1*	2		A	10 (4.54)
Cadmium acetate	543908		100	1		A	10 (4.54)
CADMIUM AND COMPOUNDS	N.A.		1*	2			**
Cadmium bromide	7789426		100	1		A	10 (4.54)
Cadmium chloride	10108642		100	1		A	10 (4.54)
Calcium arsenate	7778441		1000	1		X	1 (0.454)
Calcium arsenite	52740166		1000	1		X	1 (0.454)
Calcium carbide	75207		5000	1		A	10 (4.54)
Calcium chromate	13765190	Chromic acid H2CrO4, calcium salt	1000	1,4	U032	A	10 (4.54)
Calcium cyanide	592018	Calcium cyanide Ca(CN)2	10	1,4	P021	A	10 (4.54)
Calcium cyanide Ca(CN)2	592018	Calcium cyanide	10	1,4	P021	A	10 (4.54)
Calcium dodecylbenzenesulfonate	26264062		1000	1		C	1000 (454)
Calcium hypochlorite	7778543		100	1		A	10 (4.54)
Camphene, octachloro-	8001352	Toxaphene	1	1,2,4	P123	X	1 (0.454)
Captan	133062		10	1		A	10 (4.54)
Carbamic acid, ethyl ester	51796	Ethyl carbamate (urethane)	1*	4	U238	B	100 (45.4)
Carbamic acid, methylnitroso-, ethyl ester	615532	N-Nitroso-N-methylurethane	1*	4	U178	X	1 (0.454)
Carbamic chloride, dimethyl-	79447	Dimethylcarbamoyl chloride	1*	4	U097	X	1 (0.454)
Carbamodithioic acid, 1,2-ethanediylbis, salts & esters	111546	Ethylenebisdithiocarbamic acid, salts & esters	1*	4	U114	D	5000 (2270)
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	2303164	Diallate	1*	4	U062	B	100 (45.4)
Carbaryl	63252		100	1		B	100 (45.4)
Carbofuran	1563662		10	1		A	10 (4.54)
Carbon disulfide	75150		5000	1,4	P022	B	100 (45.4)
Carbon oxyfluoride	353504	Carbonic difluoride	1*	4	U033	C	1000 (454)
Carbon tetrachloride	56235	Methane, tetrachloro-	5000	1,2,4	U211	A	10 (4.54)
Carbonic acid, dithallium(1+) salt	6533739	Thallium(I) carbonate	1*	4	U215	B	100 (45.4)
Carbonic dichloride	75445	Phosgene	5000	1,4	P095	A	10 (4.54)
Carbonic difluoride	353504	Carbon oxyfluoride	1*	4	U033	C	1000 (454)
Carbonochloridic acid, methyl ester	79221	Methyl chlorocarbonate Methyl chloroformate	1*	4	U156	C	1000 (454)
Chloral	75876	Acetaldehyde, trichloro-	1*	4	U034	D	5000 (2270)
Chlorambucil	305033	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	1*	4	U035	A	10 (4.54)
Chlordane	57749	Chlordane, alpha & gamma isomers Chlordane, technical 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	1	1,2,4	U036	X	1 (0.454)
CHLORDANE (TECHNICAL MIXTURE AND METABOLITES)	N.A.		1*	2			**
Chlordane, alpha & gamma isomers	57749	Chlordane Chlordane, technical 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	1	1,2,4	U036	X	1 (0.454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
Chlordane, technical	57749	Chlordane Chlordane, alpha & gamma isomers 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	1	1,2,4	U036	X	1 (0.454)
CHLORINATED BENZENES	N.A.		1*	2			**
CHLORINATED ETHANES	N.A.		1*	2			**
CHLORINATED NAPHTHALENE	N.A.		1*	2			**
CHLORINATED PHENOLS	N.A.		1*	2			**
Chlorine	7782505		10	1		A	10 (4.54)
Chlornaphazine	494031	Naphthalenamine, N,N'-bis(2-chloroethyl)-	1*	4	U026	B	100 (45.4)
Chloroacetaldehyde	107200	Acetaldehyde, chloro-	1*	4	P023	C	1000 (454)
CHLOROALKYL ETHERS	N.A.		1*	2			**
p-Chloroaniline	106478	Benzenamine, 4-chloro-	1*	4	P024	C	1000 (454)
Chlorobenzene	108907	Benzene, chloro-	100	1,2,4	U037	B	100 (45.4)
Chlorobenzilate	510156	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	1*	4	U038	A	10 (4.54)
4-Chloro-m-cresol	59507	p-Chloro-m-cresol Phenol, 4-chloro-3-methyl-	1*	2,4	U039	D	5000 (2270)
p-Chloro-m-cresol	59507	Phenol, 4-chloro-3-methyl- 4-Chloro-m-cresol	1*	2,4	U039	D	5000 (2270)
Chlorodibromomethane	124481		1*	2		B	100 (45.4)
Chloroethane	75003		1*	2		B	100 (45.4)
2-Chloroethyl vinyl ether	110758	Ethene, 2-chloroethoxy-	1*	2,4	U042	C	1000 (454)
Chloroform	67663	Methane, trichloro-	5000	1,2,4	U044	A	10 (4.54)
Chloromethyl methyl ether	107302	Methane, chloromethoxy-	1*	4	U046	A	10 (4.54)
beta-Chloronaphthalene	91587	Naphthalene, 2-chloro- 2-Chloronaphthalene	1*	2,4	U047	D	5000 (2270)
2-Chloronaphthalene	91587	beta-Chloronaphthalene Naphthalene, 2-chloro-	1*	2,4	U047	D	5000 (2270)
2-Chlorophenol	95578	o-Chlorophenol Phenol, 2-chloro-	1*	2,4	U048	B	100 (45.4)
o-Chlorophenol	95578	Phenol, 2-chloro- 2-Chlorophenol	1*	2,4	U048	B	100 (45.4)
4-Chlorophenyl phenyl ether	7005723		1*	2		D	5000 (2270)
1-(o-Chlorophenyl)thiourea	5344821	Thiourea, (2-chlorophenyl)-	1*	4	P026	B	100 (45.4)
3-Chloropropionitrile	542767	Propanenitrile, 3-chloro-	1*	4	P027	C	1000 (454)
Chlorosulfonic acid	7790945		1000	1		C	1000 (454)
4-Chloro-o-toluidine, hydrochloride	3165933	Benzenamine, 4-chloro-2-methyl-, hydrochloride	1*	4	U049	B	100 (45.4)
Chlorpyrifos	2921882		1	1		X	1 (0.454)
Chromic acetate	1066304		1000	1		C	1000 (454)
Chromic acid	11115745 7738945		1000	1		A	10 (4.54)
Chromic acid H2CrO4, calcium salt	13765190	Calcium chromate	1000	1,4	U032	A	10 (4.54)
Chromic sulfate	10101538		1000	1		C	1000 (454)
Chromium ††	7440473		1*	2		D	5000 (2270)
CHROMIUM AND COMPOUNDS	N.A.		1*	2			**
Chromous chloride	10049055		1000	1		C	1000 (454)
Chrysene	218019	1,2-Benzphenanthrene	1*	2,4	U050	B	100 (45.4)
Cobaltous bromide	7789437		1000	1		C	1000 (454)
Cobaltous formate	544183		1000	1		C	1000 (454)
Cobaltous sulfamate	14017415		1000	1		C	1000 (454)
Coke Oven Emissions	N.A.		1*	3		X	1 (0.454)
Copper cyanide CuCN	544923	Copper cyanide	1*	4	P029	A	10 (4.54)
Copper ††	7440508		1*	2		D	5000 (2270)
COPPER AND COMPOUNDS	N.A.		1*	2			**
Copper cyanide	544923	Copper cyanide CuCN	1*	4	P029	A	10 (4.54)
Coumaphos	56724		10	1		A	10 (4.54)
Creosote	8001589		1*	4	U051	X	1 (0.454)
Cresol(s)	1319773	Cresylic acid Phenol, methyl-	1000	1,4	U052	C	1000 (454)
m-Cresol	108394	m-Cresylic acid					
o-Cresol	95487	o-Cresylic acid					
p-Cresol	106445	p-Cresylic acid					

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
Cresylic acid	1319773	Cresol(s) Phenol, methyl-	1000	1,4	U052	C	1000 (454)
m-Cresol	108394	m-Cresylic acid					
o-Cresol	95487	o-Cresylic acid					
p-Cresol	106445	p-Cresylic acid					
Crotonaldehyde	123739 4170303	2-Butenal	100	1,4	U053	B	100 (45.4)
Cumene	98828	Benzene, 1-methylethyl-	1*	4	U055	D	5000 (2270)
Cupric acetate	142712		100	1		B	100 (45.4)
Cupric acetoarsenite	12002038		100	1		X	1 (0.454)
Cupric chloride	7447394		10	1		A	10 (4.54)
Cupric nitrate	3251238		100	1		B	100 (45.4)
Cupric oxalate	5893663		100	1		B	100 (45.4)
Cupric sulfate	7758987		10	1		A	10 (4.54)
Cupric sulfate, ammoniated	10380297		100	1		B	100 (45.4)
Cupric tartrate	815827		100	1		B	100 (45.4)
CYANIDES	N.A.		1*	2			**
Cyanides (soluble salts and complexes) not otherwise specified	57125		1*	4	P030	A	10 (4.54)
Cyanogen	460195	Ethanedinitrile	1*	4	P031	B	100 (45.4)
Cyanogen bromide	506683	Cyanogen bromide (CN)Br	1*	4	U246	C	1000 (454)
Cyanogen bromide (CN)Br	506683	Cyanogen bromide	1*	4	U246	C	1000 (454)
Cyanogen chloride	506774	Cyanogen chloride (CN)Cl	10	1,4	P033	A	10 (4.54)
Cyanogen chloride (CN)Cl	506774	Cyanogen chloride	10	1,4	P033	A	10 (4.54)
2,5-Cyclohexadiene-1,4-dione	106514	p-Benzoquinone	1*	4	U197	A	10 (4.54)
Cyclohexane	110827	Benzene, hexahydro-	1000	1,4	U056	C	1000 (454)
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha, 6beta)-	58899	gamma—BHC Hexachlorocyclohexane (gamma isomer) Lindane	1	1,2,4	U129	X	1 (0.454)
Cyclohexanone	108941		1*	4	U057	D	5000 (2270)
2-Cyclohexyl-4,6-dinitrophenol	131895	Phenol, 2-cyclohexyl-4,6-dinitro-	1*	4	P034	B	100 (45.4)
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	77474	Hexachlorocyclopentadiene	1	1,2,4	U130	A	10 (4.54)
Cyclophosphamide	50180	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-,2-oxide	1*	4	U058	A	10 (4.54)
2,4-D Acid	94757	Acetic acid (2,4-dichlorophenoxy)-2,4-D, salts and esters	100	1,4	U240	B	100 (45.4)
2,4-D Ester	94111 94791 94804 1320189 1928387 1928616 1929733 2971382 25168267 53467111		100	1		B	100 (45.4)
2,4-D, salts and esters	94757	Acetic acid (2,4-dichlorophenoxy)-2,4-D Acid	100	1,4	U240	B	100 (45.4)
Daunomycin	20830813	5,12-Naphthacenedione, 8-acetyl-10-[3-amino-2,3,6- trideoxy-alpha-L-lyxo-hexo-pyranosyl)oxy]-7,8,9,10- tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	1*	4	U059	A	10 (4.54)
DDD	72548	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro- TDE 4,4' DDD	1	1,2,4	U060	X	1 (0.454)
4,4' DDD	72548	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro- DDD TDE	1	1,2,4	U060	X	1 (0.454)
DDE	72559	4,4' DDE	1*	2		X	1 (0.454)
4,4' DDE	72559	DDE	1*	2		X	1 (0.454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
DDT	50293	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro- 4,4'DDT	1	1,2,4	U061	X	1 (0.454)
4,4'DDT	50293	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro- DDT	1	1,2,4	U061	X	1 (0.454)
DDT AND METABOLITES	N.A.		1*	2			**
Diallate	2303164	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	1*	4	U062	B	100 (45.4)
Diazinon	333415		1	1		X	1 (0.454)
Dibenz[a,h]anthracene	53703	Dibenzo[a,h]anthracene 1,2:5,6-Dibenzanthracene	1*	2,4	U063	X	1 (0.454)
1,2:5,6-Dibenzanthracene	53703	Dibenz[a,h]anthracene Dibenzo[a,h]anthracene	1*	2,4	U063	X	1 (0.454)
Dibenzo[a,h]anthracene	53703	Dibenz[a,h]anthracene 1,2:5,6-Dibenzanthracene	1*	2,4	U063	X	1 (0.454)
Dibenz[a,i]pyrene	189559	Benzo[rst]pentaphene	1*	4	U064	A	10 (4.54)
1,2-Dibromo-3-chloropropane	96128	Propane, 1,2-dibromo-3-chloro-	1*	4	U066	X	1 (0.454)
Dibutyl phthalate	84742	Di-n-butyl phthalate n-Butyl phthalate 1,2-Benzenedicarboxylic acid, dibutyl ester	100	1,2,4	U069	A	10 (4.54)
Di-n-butyl phthalate	84742	Dibutyl phthalate n-Butyl phthalate 1,2-Benzenedicarboxylic acid, dibutyl ester	100	1,2,4	U069	A	10 (4.54)
Dicamba	1918009		1000	1		C	1000 (454)
Dichlobenil	1194656		1000	1		B	100 (45.4)
Dichlone	117806		1	1		X	1 (0.454)
Dichlorobenzene	25321226		100	1		B	100 (45.4)
1,2-Dichlorobenzene	95501	Benzene, 1,2-dichloro- o-Dichlorobenzene	100	1,2,4	U070	B	100 (45.4)
1,3-Dichlorobenzene	541731	Benzene, 1,3-dichloro m-Dichlorobenzene	1*	2,4	U071	B	100 (45.4)
1,4-Dichlorobenzene	106467	Benzene, 1,4-dichloro p-Dichlorobenzene	100	1,2,4	U072	B	100 (45.4)
m-Dichlorobenzene	541731	Benzene, 1,3-dichloro 1,3-Dichlorobenzene	1*	2,4	U071	B	100 (45.4)
o-Dichlorobenzene	95501	Benzene, 1,2-dichloro 1,2-Dichlorobenzene	100	1,2,4	U070	B	100 (45.4)
p-Dichlorobenzene	106467	Benzene,1,4-dichloro 1,4-Dichlorobenzene	100	1,2,4	U072	B	100 (45.4)
DICHLOROBENZIDINE	N.A.		1*	2			**
3,3'-Dichlorobenzidine	91941	[1,1'-Biphenyl]-4,4'diamine,3,3'dichloro-	1*	2,4	U073	X	1 (0.454)
Dichlorobromomethane	75274		1*	2		D	5000 (2270)
1,4-Dichloro-2-butene	764410	2-Butene, 1,4-dichloro-	1*	4	U074	X	1 (0.454)
Dichlorodifluoromethane	75718	Methane, dichlorodifluoro-	1*	4	U075	D	5000 (2270)
1,1-Dichloroethane	75343	Ethane, 1,1-dichloro- Ethylidene dichloride	1*	2,4	U076	C	1000 (454)
1,2-Dichloroethane	107062	Ethane, 1,2-dichloro- Ethylene dichloride	5000	1,2,4	U077	B	100 (45.4)
1,1-Dichloroethylene	75354	Ethene, 1,1-dichloro- Vinylidene chloride	5000	1,2,4	U078	B	100 (45.4)
1,2-Dichloroethylene	156605	Ethene, 1,2-dichloro- (E)	1*	2,4	U079	C	1000 (454)
Dichloroethyl ether	111444	Bis (2-chloroethyl) ether Ethane, 1,1'-oxybis[2-chloro-	1*	2,4	U025	A	10 (4.54)
Dichloroisopropyl ether	108601	Propane, 2,2'-oxybis[2-chloro-	1*	2,4	U027	C	1000 (454)
Dichloromethoxy ethane	111911	Bis(2-chloroethoxy) methane Ethane, 1,1'-[methylenebis(oxy)]bis(2-chloro-	1*	2,4	U024	C	1000 (454)
Dichloromethyl ether	542881	Methane, oxybis(chloro-	1*	4	P016	A	10 (4.54)
2,4-Dichlorophenol	120832	Phenol, 2,4-dichloro-	1*	2,4	U081	B	100 (45.4)
2,6-Dichlorophenol	87650	Phenol, 2,6-dichloro-	1*	4	U082	B	100 (45.4)
Dichlorophenylarsine	696286	Arsonous dichloride, phenyl-	1*	4	P036	X	1 (0.454)
Dichloropropane	26638197		5000	1		C	1000 (454)
1,1-Dichloropropane	78999						
1,3-Dichloropropane	142289						
1,2-Dichloropropane	78875	Propane, 1,2-dichloro- Propylene dichloride	5000	1,2,4	U083	C	1000 (454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Dichloropropane—Dichloropropene (mixture)	8003198		5000	1		B	100 (45.4)
Dichloropropene	26952238		5000	1		B	100 (45.4)
2,3-Dichloropropene	78886						
1,3-Dichloropropene	542756	1-Propene, 1,3-dichloro-	5000	1,2,4	U084	B	100 (45.4)
2,2-Dichloropropionic acid	75990		5000	1		D	5000 (2270)
Dichlorvos	62737		10	1		A	10 (4.54)
Dicofol	115322		5000	1		A	10 (4.54)
Dieldrin	60571	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-	1	1,2,4	P037	X	1 (0.454)
1,2:3,4-Diepoxybutane	1464535	2,2'-Bioxirane	1*	4	U085	A	10 (4.54)
Diethylamine	109897		1000	1		B	100 (454 4)
Diethylarsine	692422	Arsine, diethyl-	1*	4	P038	X	1 (0.454)
1,4-Diethylenedioxide	123911	1,4-Dioxane	1*	4	U108	B	100 (45.4)
Diethylhexyl phthalate	117817	Bis (2-ethylhexyl)phthalate 1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester	1*	2,4	U028	B	100 (45.4)
N,N'-Diethylhydrazine	1615801	Hydrazine, 1,2-diethyl-	1*	4	U086	A	10 (4.54)
O,O-Diethyl S-methyl dithiophosphate	3288582	Phosphorodithioic acid, O,O-diethyl S-methyl ester	1*	4	U087	D	5000 (2270)
Diethyl-p-nitrophenyl phosphate	311455	Phosphoric acid, diethyl 4-nitrophenyl ester	1*	4	P041	B	100 (45.4)
Diethyl phthalate	84662	1,2-Benzenedicarboxylic acid, diethyl ester	1*	2,4	U088	C	1000 (454)
O,O-Diethyl O-pyrazinyl phosphorothioate	297972	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	1*	4	P040	B	100 (45.4)
Diethylstilbestrol	56531	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	1*	4	U089	X	1 (0.454)
Dihydrosafrole	94586	1,3-Benzodioxole, 5-propyl-	1*	4	U090	A	10 (4.54)
Diisopropylfluorophosphate	55914	Phosphorofluoridic acid, bis(1-methylethyl) ester	1*	4	P043	B	100 (45.4)
1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-	309002	Aldrin	1	1,2,4	P004	X	1 (0.454)
1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro, (1alpha,4alpha,4abeta,5abeta,8beta,8abeta)-	465736	Isodrin	1*	4	P060	X	1 (0.454)
2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta,7aalpha)-	60571	Dieldrin	1	1,2,4	P037	X	1 (0.454)
2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octa-hydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-	72208	Endrin Endrin, & metabolites	1	1,2,4	P051	X	1 (0.454)
Dimethoate	60515	Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester	1*	4	P044	A	10 (4.54)
3,3'-Dimethoxybenzidine	119904	[1,1'-Biphenyl]-4,4'diamine,3,3'dimethoxy-	1*	4	U091	B	100 (45.4)
Dimethylamine	124403	Methanamine, N-methyl-	1000	1,4	U092	C	1000 (454)
p-Dimethylaminoazobenzene	60117	Benzenamine, N,N-dimethyl-4-(phenylazo-)	1*	4	U093	A	10 (4.54)
7,12-Dimethylbenz[a]anthracene	57976	Benz[a]anthracene, 7,12-dimethyl-	1*	4	U094	X	1 (0.454)
3,3'-Dimethylbenzidine	119937	[1,1'Biphenyl]-4,4'-diamine,3,3'-dimethyl-	1*	4	U095	A	10 (4.54)
alpha,alpha-Dimethylbenzylhydroperoxide	80159	Hydroperoxide, 1-methyl-1-phenylethyl-	1*	4	U096	A	10 (4.54)
Dimethylcarbamoyl chloride	79447	Carbamic chloride, dimethyl-	1*	4	U097	X	1 (0.454)
1,1-Dimethylhydrazine	57147	Hydrazine, 1,1-dimethyl-	1*	4	U098	A	10 (4.54)
1,2-Dimethylhydrazine	540738	Hydrazine, 1,2-dimethyl-	1*	4	U099	X	1 (0.454)
alpha,alpha-Dimethylphenethylamine	122098	Benzeneethanamine, alpha,alpha-dimethyl-	1*	4	P046	D	5000 (2270)
2,4-Dimethylphenol	105679	Phenol, 2,4-dimethyl-	1*	2,4	U101	B	100 (45.4)
Dimethyl phthalate	131113	1,2-Benzenedicarboxylic acid, dimethyl ester	1*	2,4	U102	D	5000 (2270)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Dimethyl sulfate	77781	Sulfuric acid, dimethyl ester	1*	4	U103	B	100 (45.4)
Dinitrobenzene (mixed)	25154545		1000	1		B	100 (45.4)
m-Dinitrobenzene	99650						....
o-Dinitrobenzene	528290						....
p-Dinitrobenzene	100254						....
4,6-Dinitro-o-cresol and salts	534521	Phenol, 2-methyl-4,6-dinitro-	1*	2,4	P047	A	10 (4.54)
Dinitrophenol	25550587		1000	1		A	10 (4.54)
2,5-Dinitrophenol	329715		....				....
2,6-Dinitrophenol	573568		....				....
2,4-Dinitrophenol	51285	Phenol, 2,4-dinitro-	1000	1,2,4	P048	A	10 (4.54)
Dinitrotoluene	25321146		1000	1,2		A	10 (4.54)
3,4-Dinitrotoluene	610399						
2,4-Dinitrotoluene	121142	Benzene, 1-methyl-2,4-dinitro-	1000	1,2,4	U105	A	10 (4.54)
2,6-Dinitrotoluene	606202	Benzene, 2-methyl-1,3-dinitro-	1000	1,2,4	U106	B	100 (45.4)
Dinoseb	88857	Phenol, 2-(1-methylpropyl)-4,6-dinitro	1*	4	P020	C	1000 (454)
Di-n-octyl phthalate	117840	1,2-Benzenedicarboxylic acid, dioctyl ester	1*	2,4	U107	D	5000 (2270)
1,4-Dioxane	123911	1,4-Diethylenedioxide	1*	4	U108	B	100 (45.4)
DIPHENYLHYDRAZINE	N.A.		1*	2			**
1,2-Diphenylhydrazine	122667	Hydrazine, 1,2-diphenyl-	1*	2,4	U109	A	10 (4.54)
Diphosphoramide, octamethyl-	152169	Octamethylpyrophosphoramide	1*	4	P085	B	100 (45.4)
Diphosphonic acid, tetraethyl ester	107493	Tetraethyl pyrophosphate	100	1,4	P111	A	10 (4.54)
Dipropylamine	142847	1-Propanamine, N-propyl-	1*	4	U110	D	5000 (2270)
Di-n-propylnitrosamine	621647	1-Propanamine, N-nitroso-N-propyl-	1*	2,4	U111	A	10 (4.54)
Diquat	85007 2764729		1000	1		C	1000 (454)
Disulfoton	298044	Phosphorodithioic acid, o,o-diethyl S-[2-(ethylthio)ethyl]ester	1	1,4	P039	X	1 (0.454)
Dithiobiuret	541537	Thioimidodicarbonic diamide [(H2N) C(S)]2NH	1*	4	P049	B	100 (45.4)
Diuron	330541		100	1		B	100 (45.4)
Dodecylbenzenesulfonic acid	27176870		1000	1		C	1000 (454)
Endosulfan	115297	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	1	1,2,4	P050	X	1 (0.454)
alpha - Endosulfan	959988		1*	2		X	1 (0.454)
beta - Endosulfan	33213659		1*	2		X	1 (0.454)
ENDOSALFAN AND METABOLITES	N.A.		1*	2			**
Endosulfan sulfate	1031078		1*	2		X	1 (0.454)
Endothall	145733	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	1*	4	P088	C	1000 (454)
Endrin	72208	Endrin, & metabolites 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9 -hexachloro-1a,2,2a,3, 6,6a,7,7a-octa-hydro-, (1aalpha, 2beta,2abeta,3alpha,6alpha, 6abeta,7beta, 7aalpha)-	1	1,2,4	P051	X	1 (0.454)
Endrin aldehyde	7421934		1*	2		X	1 (0.454)
ENDRIN AND METABOLITES	N.A.		1*	2			**
Endrin, & metabolites	72208	Endrin 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3, 6,6a,7,7a-octa-hydro-, (1aalpha, 2beta,2abeta,3alpha,6alpha, 6abeta,7beta, 7aalpha)-	1	1,2,4	P051	X	1 (0.454)
Epichlorohydrin	106898	Oxirane, (chloromethyl)-	1000	1,4	U041	B	100 (45.4)
Epinephrine	51434	1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-	1*	4	P042	C	1000 (454)
Ethanal	75070	Acetaldehyde	1000	1,4	U001	C	1000 (454)
Ethanamine, N-ethyl-N-nitroso-	55185	N-Nitrosodiethylamine	1*	4	U174	X	1 (0.454)
1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-	91805	Methapyrilene	1*	4	U155	D	5000 (2270)
Ethane 1,2-dibromo-	106934	Ethylene dibromide	1000	1,4	U067	X	1 (0.454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
Ethane, 1,1-dichloro-	75343	Ethylidene dichloride 1,1-Dichloroethane	1*	2,4	U076	C	1000 (454)
Ethane, 1,2-dichloro-	107062	Ethylene dichloride 1,2-Dichloroethane	5000	1,2,4	U077	B	100 (45.4)
Ethanedinitrile	460195	Cyanogen	1*	4	P031	B	100 (45.4)
Ethane, hexachloro-	67721	Hexachloroethane	1*	2,4	U131	B	100 (45.4)
Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	111911	Bis (2-chloroethoxy) methane Dichloromethoxy ethane	1*	2,4	U024	C	1000 (454)
Ethane, 1,1'-oxybis-	60297	Ethyl ether	1*	4	U117	B	100 (45.4)
Ethane, 1,1'-oxybis[2-chloro-	111444	Bis (2-chloroethyl) ether Dichloroethyl ether	1*	2,4	U025	A	10 (4.54)
Ethane, pentachloro-	76017	Pentachloroethane	1*	4	U184	A	10 (4.54)
Ethane, 1,1,1,2-tetrachloro-	630206	1,1,1,2-Tetrachloroethane	1*	4	U208	B	100 (45.4)
Ethane, 1,1,2,2-tetrachloro-	79345	1,1,2,2-Tetrachloroethane	1*	2,4	U209	B	100 (45.4)
Ethanethioamide	62555	Thioacetamide	1*	4	U218	A	10 (4.54)
Ethane, 1,1,1-trichloro-	71556	Methyl chloroform 1,1,1-Trichloroethane	1*	2,4	U226	C	1000 (454)
Ethane, 1,1,2-trichloro-	79005	1,1,2-Trichloroethane	1*	2,4	U227	B	100 (45.4)
Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester	16752775	Methomyl	1*	4	P066	B	100 (45.4)
Ethanol, 2-ethoxy-	110805	Ethylene glycol monoethyl ether	1*	4	U359	C	1000 (454)
Ethanol, 2,2'-(nitrosoimino)bis-	1116547	N-Nitrosodiethanolamine	1*	4	U173	X	1 (0.454)
Ethanone, 1-phenyl-	98862	Acetophenone	1*	4	U004	D	5000 (2270)
Ethene, chloro-	75014	Vinyl chloride	1*	2,3,4	U043	X	1 (0.454)
Ethene, 2-chloroethoxy-	110758	2-Chloroethyl vinyl ether	1*	2,4	U042	C	1000 (454)
Ethene, 1,1-dichloro-	75354	Vinylidene chloride 1,1-Dichloroethylene	5000	1,2,4	U078	B	100 (45.4)
Ethene, 1,2-dichloro- (E)	156605	1,2-Dichloroethylene	1*	2,4	U079	C	1000 (454)
Ethene, tetrachloro-	127184	Perchloroethylene Tetrachloroethene Tetrachloroethylene	1*	2,4	U210	B	100 (45.4)
Ethene, trichloro-	79016	Trichloroethene Trichloroethylene	1000	1,2,4	U228	B	100 (45.4)
Ethion	563122		10	1		A	10 (4.54)
Ethyl acetate	141786	Acetic acid, ethyl ester	1*	4	U112	D	5000 (2270)
Ethyl acrylate	140885	2-Propenoic acid, ethyl ester	1*	4	U113	C	1000 (454)
Ethylbenzene	100414		1000	1,2		C	1000 (454)
Ethyl carbamate (urethane)	51796	Carbamic acid, ethyl ester	1*	4	U238	B	100 (45.4)
Ethyl cyanide	107120	Propanenitrile	1*	4	P101	A	10 (4.54)
Ethylenebisdithiocarbamic acid, salts & esters	111546	Carbamodithioic acid, 1,2-ethanediylbis, salts & esters	1*	4	U114	D	5000 (2270)
Ethylenediamine	107153		1000	1		D	5000 (2270)
Ethylenediamine-tetraacetic acid (EDTA)	60004		5000	1		D	5000 (2270)
Ethylene dibromide	106934	Ethane, 1,2-dibromo-	1000	1,4	U067	X	1 (0.454)
Ethylene dichloride	107062	Ethane, 1,2-dichloro- 1,2-Dichloroethane	5000	1,2,4	U077	B	100 (45.4)
Ethylene glycol monoethyl ether	110805	Ethanol, 2-ethoxy-	1*	4	U359	C	1000 (454)
Ethylene oxide	75218	Oxirane	1*	4	U115	A	10 (4.54)
Ethylenethiourea	96457	2-Imidazolidinethione	1*	4	U116	A	10 (4.54)
Ethylenimine	151564	Aziridine	1*	4	P054	X	1 (0.454)
Ethyl ether	60297	Ethane, 1,1'-oxybis-	1*	4	U117	B	100 (45.4)
Ethylidene dichloride	75343	Ethane, 1,1-dichloro- 1,1-Dichloroethane	1*	2,4	U076	C	1000 (454)
Ethyl methacrylate	97632	2-Propenoic acid, 2-methyl-, ethyl ester	1*	4	U118	C	1000 (454)
Ethyl methanesulfonate	62500	Methanesulfonic acid, ethyl ester	1*	4	U119	X	1 (0.454)
Famphur	52857	Phosphorothioic acid, O,[4-[(dimethylamino) sulfonyl] phenyl] O,O-dimethyl ester	1*	4	P097	C	1000 (454)
Ferric ammonium citrate	1185575		1000	1		C	1000 (454)
Ferric ammonium oxalate	2944674 55488874		1000	1		C	1000 (454)
Ferric chloride	7705080		1000	1		C	1000 (454)
Ferric fluoride	7783508		100	1		B	100 (45.4)
Ferric nitrate	10421484		1000	1		C	1000 (454)
Ferric sulfate	10028225		1000	1		C	1000 (454)
Ferrous ammonium sulfate	10045893		1000	1		C	1000 (454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Ferrous chloride	7758943		100	1		B	100 (45.4)
Ferrous sulfate	7720787 7782630		1000	1		C	1000 (454)
Fluoranthene	206440	Benzo[j,k]fluorene	1*	2,4	U120	B	100 (45.4)
Fluorene	86737		1*	2		D	5000 (2270)
Fluorine	7782414		1*	4	P056	A	10 (4.54)
Fluoroacetamide	640197	Acetamide, 2-fluoro-	1*	4	P057	B	100 (45.4)
Fluoroacetic acid, sodium salt	62748	Acetic acid, fluoro-, sodium salt	1*	4	P058	A	10 (4.54)
Formaldehyde	50000		1000	1,4	U122	B	100 (45.4)
Formic acid	64186		5000	1,4	U123	D	5000 (2270)
Fulminic acid, mercury(2+)salt	628864	Mercury fulminate	1*	4	P065	A	10 (4.54)
Fumaric acid	110178		5000	1		D	5000 (2270)
Furan	110009	Furfuran	1*	4	U124	B	100 (45.4)
Furan, tetrahydro-	109999	Tetrahydrofuran	1*	4	U213	C	1000 (454)
2-Furancarboxaldehyde	98011	Furfural	1000	1,4	U125	D	5000 (2270)
2,5-Furandione	108316	Maleic anhydride	5000	1,4	U147	D	5000 (2270)
Furfural	98011	2-Furancarboxaldehyde	1000	1,4	U125	D	5000 (2270)
Furfuran	110009	Furan	1*	4	U124	B	100 (45.4)
Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-	18883664	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino] Streptozotocin	1*	4	U206	X	1 (0.454)
D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]-.	18883664	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)- Streptozotocin	1*	4	U206	X	1 (0.454)
Glycidylaldehyde	765344	Oxiranecarboxyaldehyde	1*	4	U126	A	10 (4.54)
Guanidine, N-methyl-N'-nitro-N-nitroso-	70257	MNNG	1*	4	U163	A	10 (4.54)
Guthion	86500		1	1		X	1 (0.454)
HALOETHERS	N.A.		1*	2			**
HALOMETHANES	N.A.		1*	2			**
Heptachlor	76448	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	1	1,2,4	P059	X	1 (0.454)
HEPTACHLOR AND METABOLITES	N.A.		1*	2			**
Heptachlor epoxide	1024573		1*	2		X	1 (0.454)
Hexachlorobenzene	118741	Benzene, hexachloro-	1*	2,4	U127	A	10 (4.54)
Hexachlorobutadiene	87683	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	1*	2,4	U128	X	1 (0.454)
HEXACHLOROCYCLOHEXANE (all isomers).	608731		1*	2			**
Hexachlorocyclohexane (gamma isomer)	58899	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-gamma-BHC Lindane	1	1,2,4	U129	X	1 (0.454)
Hexachlorocyclopentadiene	77474	1,3-Cyclopentadiene,1,2,3,4,5,5-hexachloro-	1	1,2,4	U130	A	10 (4.54)
Hexachloroethane	67721	Ethane, hexachloro-	1*	2,4	U131	B	100 (45.4)
Hexachlorophene	70304	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	1*	4	U132	B	100 (45.4)
Hexachloropropene	1888717	1-Propene, 1,1,2,3,3,3-hexachloro-	1*	4	U243	C	1000 (454)
Hexaethyl tetraphosphate	757584	Tetraphosphoric acid, hexaethyl ester	1*	4	P062	B	100 (45.4)
Hydrazine	302012		1*	4	U133	X	1 (0.454)
Hydrazine, 1,2-diethyl-	1615801	N,N'-Diethylhydrazine	1*	4	U086	A	10 (4.54)
Hydrazine, 1,1-dimethyl-	57147	1,1-Dimethylhydrazine	1*	4	U098	A	10 (4.54)
Hydrazine, 1,2-dimethyl-	540738	1,2-Dimethylhydrazine	1*	4	U099	X	1 (0.454)
Hydrazine, 1,2-diphenyl-	122667	1,2-Diphenylhydrazine	1*	2,4	U109	A	10 (4.54)
Hydrazine, methyl-	60344	Methyl hydrazine	1*	4	P068	A	10 (4.54)
Hydrazinecarbothioamide	79196	Thiosemicarbazide	1*	4	P116	B	100 (45.4)
Hydrochloric acid	7647010	Hydrogen chloride	5000	1		D	5000 (2270)
Hydrocyanic acid	74908	Hydrogen cyanide	10	1,4	P063	A	10 (4.54)
Hydrofluoric acid	7664393	Hydrogen fluoride	5000	1,4	U134	B	100 (45.4)
Hydrogen chloride	7647010	Hydrochloric acid	5000	1		D	5000 (2270)
Hydrogen cyanide	74908	Hydrocyanic acid	10	1,4	P063	A	10 (4.54)
Hydrogen fluoride	7664393	Hydrofluoric acid	5000	1,4	U134	B	100 (45.4)
Hydrogen sulfide	7783064	Hydrogen sulfide H2S	100	1,4	U135	B	100 (45.4)
Hydrogen sulfide H2S	7783064	Hydrogen sulfide	100	1,4	U135	B	100 (45.4)
Hydroperoxide, 1-methyl-1-phenylethyl-	80159	alpha,alpha-Dimethylbenzylhydroperoxide	1*	4	U096	A	10 (4.54)
2-Imidazolidinethione	96457	Ethylenethiourea	1*	4	U116	A	10 (4.54)
Indeno(1,2,3-cd)pyrene	193395	1,10-(1,2-Phenylene)pyrene	1*	2,4	U137	B	100 (45.4)
1,3-Isobenzofurandione	85449	Phthalic anhydride	1*	4	U190	D	5000 (2270)
Isobutyl alcohol	78831	1-Propanol, 2-methyl-	1*	4	U140	D	5000 (2270)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Isodrin	465736	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro, (1alpha,4alpha,4abeta,5beta, 8beta,8abeta)-	1*	4	P060	X	1 (0.454)
Isophorone	78591		1*	2		D	5000 (2270)
Isoprene	78795		1000	1		B	100 (45.4)
Isopropanolamine dodecylbenzenesulfonate	42504461		1000	1		C	1000 (454)
Isosafrole	120581	1,3-Benzodioxole, 5-)1-propenyl)-	1*	4	U141	B	100 (45.4)
3(2H)-Isoxazolone, 5-(aminomethyl)-	2763964	Muscimol 5-(Aminomethyl)-3-isoxazolol	1*	4	P007	C	1000 (454)
Kepone	143500	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlor-octahydro-	1	1,4	U142	X	1 (0.454)
Lasiocarpine	303344	2-Butenoic acid, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z), 7(2S*,3R*),7aalpha]]-	1*	4	U143	A	10 (4.54)
Lead ††	7439921		1*	2			#
Lead acetate	301042	Acetic acid, lead(2+) salt	5000	1,4	U144		#
LEAD AND COMPOUNDS	N.A.		1*	2			**
Lead arsenate	7784409 7645252 10102484		5000	1		X	1 (0.454)
Lead, bis(acetato-O)tetrahydroxytri	1335326	Lead subacetate	1*	4	U146	B	100 (45.4)
Lead chloride	7758954		5000	1		B	100 (45.4)
Lead fluoborate	13814965		5000	1		B	100 (45.4)
Lead fluoride	7783462		1000	1		B	100 (45.4)
Lead iodide	10101630		5000	1		B	100 (45.4)
Lead nitrate	10099748		5000	1		B	100 (45.4)
Lead phosphate	7446277	Phosphoric acid, lead(2+) salt (2:3)	1*	4	U145		#
Lead stearate	7428480 1072351 52652592 56189094		5000	1		D	5000# (2270)
Lead subacetate	1335326	Lead, bis(acetato-O)tetrahydroxytri	1*	4	U146	B	100 (45.4)
Lead sulfate	15739807 7446142		5000	1		B	100 (45.4)
Lead sulfide	1314870		5000	1		D	5000# (2270)
Lead thiocyanate	592870		5000	1		B	100 (45.4)
Lindane	58899	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)- gamma-BHC Hexachlorocyclohexane (gamma isomer)	1	1,2,4	U129	X	1 (0.454)
Lithium chromate	14307358		1000	1		A	10 (4.54)
Malathion	121755		10	1		B	100 (45.4)
Maleic acid	110167		5000	1		D	5000 (2270)
Maleic anhydride	108316	2,5-Furandione	5000	1,4	U147	D	5000 (2270)
Maleic hydrazide	123331	3,6-Pyridazinedione, 1,2-dihydro-	1*	4	U148	D	5000 (2270)
Malononitrile	109773	Propanedinitrile	1*	4	U149	C	1000 (454)
Melphalan	148823	L-Phenylalanine, 4-[bis(2-chloroethyl) amino]]	1*	4	U150	X	1 (0.454)
Mercaptodimethur	2032657		100	1		A	10 (4.54)
Mercuric cyanide	592041		1	1		X	1 (0.454)
Mercuric nitrate	10045940		10	1		A	10 (4.54)
Mercuric sulfate	7783359		10	1		A	10 (4.54)
Mercuric thiocyanate	592858		10	1		A	10 (4.54)
Mercurous nitrate	10415755 7782867		10	1		A	10 (4.54)
Mercury	7439976		1*	2,3,4	U151	X	1 (0.454)
MERCURY AND COMPOUNDS	N.A.		1*	2			**
Mercury, (acetato-O)phenyl-	62384	Phenylmercury acetate	1*	4	P092	B	100 (45.4)
Mercury fulminate	628864	Fulminic acid, mercury(2+)salt	1*	4	P065	A	10 (4.54)
Methacrylonitrile	126987	2-Propenenitrile, 2-methyl-	1*	4	U152	C	1000 (454)
Methanamine, N-methyl-	124403	Dimethylamine	1000	1,4	U092	C	1000 (454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Methanamine, N-methyl-N-nitroso-	62759	N-Nitrosodimethylamine	1*	2,4	P082	A	10 (4.54)
Methane, bromo-	74839	Methyl bromide	1*	2,4	U029	C	1000 (454)
Methane, chloro-	74873	Methyl chloride	1*	2,4	U045	B	100 (45.4)
Methane, chloromethoxy-	107302	Chloromethyl methyl ether	1*	4	U046	A	10 (4.54)
Methane, dibromo-	74953	Methylene bromide	1*	4	U068	C	1000 (454)
Methane, dichloro-	75092	Methylene chloride	1*	2,4	U080	C	1000 (454)
Methane, dichlorodifluoro-	75718	Dichlorodifluoromethane	1*	4	U075	D	5000 (2270)
Methane, iodo-	74884	Methyl iodide	1*	4	U138	B	100 (45.4)
Methane, isocyanato-	624839	Methyl isocyanate	1*	4	P064		##
Methane, oxybis(chloro-	542881	Dichloromethyl ether	1*	4	P016	A	10 (4.54)
Methanesulfenyl chloride, trichloro-	594423	Trichloromethanesulfenyl chloride	1*	4	P118	B	100 (45.4)
Methanesulfonic acid, ethyl ester	62500	Ethyl methanesulfonate	1*	4	U119	X	1 (0.454)
Methane, tetrachloro-	56235	Carbon tetrachloride	5000	1,2,4	U211	A	10 (4.54)
Methane, tetranitro-	509148	Tetranitromethane	1*	4	P112	A	10 (4.54)
Methane, tribromo-	75252	Bromoform	1*	2,4	U225	B	100 (45.4)
Methane, trichloro-	67663	Chloroform	5000	1,2,4	U044	A	10 (4.54)
Methane, trichlorofluoro-	75694	Trichloromonofluoromethane	1*	4	U121	D	5000 (2270)
Methanethiol	74931	Methylmercaptan Thiomethanol	100	1,4	U153	B	100 (45.4)
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	115297	Endosulfan	1	1,2,4	P050	X	1 (0.454)
1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-	143500	Kepone	1	1,4	U142	X	1 (0.454)
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	76448	Heptachlor	1	1,2,4	P059	X	1 (0.454)
4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	57749	Chlordane Chlordane, alpha & gamma isomers Chlordane, technical	1	1,2,4	U036	X	1 (0.454)
Methanol	67561	Methyl alcohol	1*	4	U154	D	5000 (2270)
Methapyrilene	91805	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-	1*	4	U155	D	5000 (2270)
Methomyl	16752775	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester	1*	4	P066	B	100 (45.4)
Methoxychlor	72435	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-	1	1,4	U247	X	1 (0.454)
Methyl alcohol	67561	Methanol	1*	4	U154	D	5000 (2270)
Methyl bromide	74839	Methane, bromo-	1*	2,4	U029	C	1000 (454)
1-Methylbutadiene	504609	1,3-Pentadiene	1*	4	U186	B	100 (45.4)
Methyl chloride	74873	Methane, chloro-	1*	2,4	U045	B	100 (45.4)
Methyl chlorocarbonate	79221	Carbonochloridic acid, methyl ester Methyl chloroformate	1*	4	U156	C	1000 (454)
Methyl chloroform	71556	Ethane, 1,1,1-trichloro- 1,1,1-Trichloroethane	1*	2,4	U226	C	1000 (454)
Methyl chloroformate	79221	Carbonochloridic acid, methyl ester Methyl chlorocarbonate	1*	4	U156	C	1000 (454)
3-Methylcholanthrene	56495	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	1*	4	U157	A	10 (4.54)
4,4'-Methylenebis(2-chloroaniline)	101144	Benzenamine, 4,4'-methylenebis(2-chloro-	1*	4	U158	A	10 (4.54)
Methylene bromide	74953	Methane, dibromo-	1*	4	U068	C	1000 (454)
Methylene chloride	75092	Methane, dichloro-	1*	2,4	U080	C	1000 (454)
Methyl ethyl ketone (MEK)	78933	2-Butanone	1*	4	U159	D	5000 (2270)
Methyl ethyl ketone peroxide	1338234	2-Butanone peroxide	1*	4	U160	A	10 (4.54)
Methyl hydrazine	60344	Hydrazine, methyl-	1*	4	P068	A	10 (4.54)
Methyl iodide	74884	Methane, iodo-	1*	4	U138	B	100 (45.4)
Methyl isobutyl ketone	108101	4-Methyl-2-pentanone	1*	4	U161	D	5000 (2270)
Methyl isocyanate	624839	Methane, isocyanato-	1*	4	P064		##
2-Methyllactonitrile	75865	Acetone cyanohydrin Propanenitrile, 2-hydroxy-2-methyl-	10	1,4	P069	A	10 (4.54)
Methylmercaptan	74931	Methanethiol Thiomethanol	100	1,4	U153	B	100 (45.4)
Methyl methacrylate	80626	2-Propenoic acid, 2-methyl-, methyl ester	5000	1,4	U162	C	1000 (454)
Methyl parathion	298000	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	100	1,4	P071	B	100 (45.4)
4-Methyl-2-pentanone	108101	Methyl isobutyl ketone	1*	4	U161	D	5000 (2270)
Methylthiouracil	56042	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	1*	4	U164	A	10 (4.54)

[Sec. 302.4(b)]

TABLE 302.4 — LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES — Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Mevinphos	7786347		1	1		A	10 (4.54)
Mexacarbate	315184		1000	1		C	1000 (454)
Mitomycin C	50077	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[(aminocarbonyl)oxy] methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta, 8aalpha, 8balpha)]-	1 *	4	U010	A	10 (4.54)
MNNG	70257	Guanidine, N-methyl-N'-nitro-N-nitroso-	1 *	4	U163	A	10 (4.54)
Monoethylamine	75047		1000	1		B	100 (45.4)
Monomethylamine	74895		1000	1		B	100 (45.4)
Multi Source Leachate			1 *	4	F039	X	1 (0.454)
Muscimol	2763964	3(2H)-Isoxazolone, 5-(aminomethyl)- 5-(Aminomethyl)-3-isoxazolol	1 *	4	P007	C	1000 (454)
Naled	300765		10	1		A	10 (4.54)
5,12-Naphthacenedione, 8-acetyl-10-[3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	20830813	Daunomycin	1 *	4	U059	A	10 (4.54)
1-Naphthalenamine	134327	alpha-Naphthylamine	1 *	4	U167	B	100 (45.4)
2-Naphthalenamine	91598	beta-Naphthylamine	1 *	4	U168	A	10 (4.54)
Naphthalenamine, N,N'-bis(2-chloroethyl)-	494031	Chlornaphazine	1 *	4	U026	B	100 (45.4)
Naphthalene	91203		5000	1,2,4	U165	B	100 (45.4)
Naphthalene, 2-chloro-	91587	beta-Chloronaphthalene 2-Chloronaphthalene	1 *	2,4	U047	D	5000 (2270)
1,4-Naphthalenedione	130154	1,4-Naphthoquinone	1 *	4	U166	D	5000 (2270)
2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt.	72571	Trypan blue	1 *	4	U236	A	10 (4.54)
Naphthenic acid	1338245		100	1		B	100 (45.4)
1,4-Naphthoquinone	130154	1,4-Naphthalenedione	1 *	4	U166	D	5000 (2270)
alpha-Naphthylamine	134327	1-Naphthalenamine	1 *	4	U167	B	100 (45.4)
beta-Naphthylamine	91598	2-Naphthalenamine	1 *	4	U168	A	10 (4.54)
alpha-Naphthylthiourea	86884	Thiourea, 1-naphthalenyl-	1 *	4	P072	B	100 (45.4)
Nickel††	7440020		1 *	2		B	100 (45.4)
Nickel ammonium sulfate	15699180		5000	1		B	100 (45.4)
NICKEL AND COMPOUNDS	N.A.		1 *	2			**
Nickel carbonyl	13463393	Nickel carbonyl Ni(CO)4, (T-4)-	1 *	4	P073	A	10 (4.54)
Nickel carbonyl Ni(CO)4, (T-4)-	13463393	Nickel carbonyl	1 *	4	P073	A	10 (4.54)
Nickel chloride	7718549 37211055		5000	1		B	100 (45.4)
Nickel cyanide	557197	Nickel cyanide Ni(CN)2	1*	4	P074	A	10 (4.54)
Nickel cyanide Ni(CN)2	557197	Nickel cyanide	1*	4	P074	A	10 (4.54)
Nickel hydroxide	12054487		1000	1		A	10 (4.54)
Nickel nitrate	14216752		5000	1		B	100 (45.4)
Nickel sulfate	7786814		5000	1		B	100 (45.4)
Nicotine, & salts	54115	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-	1*	4	P075	B	100 (45.4)
Nitric acid	7697372		1000	1		C	1000 (454)
Nitric acid thallium (1+) salt	10102451	Thallium (I) nitrate	1*	4	U217	B	100 (45.4)
Nitric oxide	10102439	Nitrogen oxide NO	1*	4	P076	A	10 (4.54)
p-Nitroaniline	100016	Benzenamine, 4-nitro-	1*	4	P077	D	5000 (2270)
Nitrobenzene	98953	Benzene, nitro-	1000	1,2,4	U169	C	1000 (454)
Nitrogen dioxide	10102440 10544726	Nitrogen oxide NO2	1000	1,4	P078	A	10 (4.54)
Nitrogen oxide NO	10102439	Nitric oxide	1*	4	P076	A	10 (4.54)
Nitrogen oxide NO2	10102440 10544726	Nitrogen dioxide	1000	1,4	P078	A	10 (4.54)
Nitroglycerine	55630	1,2,3-Propanetriol, trinitrate-	1*	4	P081	A	10 (4.54)
Nitrophenol (mixed)	25154556		1000	1		B	100 (45.4)
m-Nitrophenol	554847					B	100 (45.4)
o-Nitrophenol	88755	2-Nitrophenol					
p-Nitrophenol	100027	Phenol, 4-nitro- 4-Nitrophenol	1000	1,2		B	100 (45.4)
o-Nitrophenol	88755	2-Nitrophenol					

[Sec. 302.4(b)]

TABLE 302.4 — LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES — Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
p-Nitrophenol	100027	Phenol, 4-nitro- 4-Nitrophenol	1000	1,2,4	U170	B	100 (45.4)
2-Nitrophenol	88755	o-Nitrophenol	1000	1,2		B	100 (45.4)
4-Nitrophenol	100027	p-Nitrophenol Phenol, 4-nitro-	1000	1,2,4	U170	B	100 (45.4)
NITROPHENOLS	N.A.		1 *	2			**
2-Nitropropane	79469	Propane, 2-nitro-	1 *	4	U171	A	10 (4.54)
NITROSAMINES	N.A.		1 *	2			**
N-Nitrosodi-n-butylamine	924163	1-Butanamine, N-butyl-N-nitroso-	1 *	4	U172	A	10 (4.54)
N-Nitrosodiethanolamine	1116547	Ethanol, 2,2'-(nitrosoimino)bis-	1 *	4	U173	X	1 (0.454)
N-Nitrosodiethylamine	55185	Ethanamine, N-ethyl-N-nitroso-	1 *	4	U174	X	1 (0.454)
N-Nitrosodimethylamine	62759	Methanamine, N-methyl-N-nitroso-	1 *	2,4	P082	A	10 (4.54)
N-Nitrosodiphenylamine	86306		1 *	2		B	100 (45.4)
N Nitroso-N-ethylurea	759739	Urea, N-ethyl-N-nitroso-	1 *	4	U176	X	1 (0.454)
N-Nitroso-N-methylurea	684935	Urea, N-methyl-N-nitroso	1 *	4	U177	X	1 (0.454)
N-Nitroso-N-methylurethane	615532	Carbamic acid, methylnitroso-, ethyl ester	1 *	4	U178	X	1 (0.454)
N-Nitrosomethylvinylamine	4549400	Vinylamine, N-methyl-N-nitroso-	1 *	4	P084	A	10 (4.54)
N-Nitrosopiperidine	100754	Piperidine, 1-nitroso-	1 *	4	U179	A	10 (4.54)
N-Nitrosopyrrolidine	930552	Pyrrolidine, 1-nitroso-	1 *	4	U180	X	1 (0.454)
Nitrotoluene	1321126		1000	1		C	1000 (454)
m-Nitrotoluene	99081						
o-Nitrotoluene	88722						
p-Nitrotoluene	99990						
5-Nitro-o-toluidine	99558	Benzenamine, 2-methyl-5-nitro-	1 *	4	U181	B	100 (45.4)
Octamethylpyrophosphoramide	152169	Diphosphoramide, octamethyl-	1 *	4	P085	B	100 (45.4)
Osmium oxide OsO_4 (T-4)-	20816120	Osmium tetroxide	1 *	4	P087	C	1000 (454)
Osmium tetroxide	20816120	Osmium oxide OsO_4 (T-4)-	1 *	4	P087	C	1000 (454)
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	145733	Endothall	1 *	4	P088	C	1000 (454)
1,2-Oxathiolane, 2,2-dioxide	1120714	1,3-Propane sultone	1 *	4	U193	A	10 (4.54)
2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-2-oxide	50180	Cyclophosphamide	1 *	4	U058	A	10 (4.54)
Oxirane	75218	Ethylene oxide	1 *	4	U115	A	10 (4.54)
Oxiranecarboxyaldehyde	765344	Glycidylaldehyde	1 *	4	U126	A	10 (4.54)
Oxirane (chloromethyl)	106898	Epichlorohydrin	1000	1,4	U041	B	100 (45.4)
Paraformaldehyde	30525894		1000	1		C	1000 (454)
Paraldehyde	123637	1,3,5-Trioxane, 2,4,6-trimethyl-	1 *	4	U182	C	1000 (454)
Parathion	56382	Phosphorothioic acid, O,O-diethyl (O-(4-nitrophenyl) ester	1	1,4	P089	A	10 (4.54)
Pentachlorobenzene	608935	Benzene, pentachloro-	1 *	4	U183	A	10 (4.54)
Pentachloroethane	76017	Ethane, pentachloro-	1 *	4	U184	A	10 (4.54)
Pentachloronitrobenzene (PCNB)	82688	Benzene, pentachloronitro-	1 *	4	U185	B	100 (45.4)
Pentachlorophenol	87865	Phenol, pentachloro-	10	1,2,4	U242	A	10 (4.54)
1,3-Pentadiene	504609	1-Methylbutadiene	1 *	4	U186	B	100 (45.4)
Perchloroethylene	127184	Ethene, tetrachloro- Tetrachloro- ethene Tetrachloroethylene	1 *	2,4	U210	B	100 (45.4)
Phenacetin	62442	Acetamide, N-(4-ethoxyphenyl)-	1 *	4	U187	B	100 (45.4)
Phenanthrene	85018		1 *	2		D	5000 (2270)
Phenol	108952	Benzene, hydroxy-	1000	1,2,4	U188	C	1000 (454)
Phenol, 2-chloro	95578	o-Chlorophenol 2-Chlorophenol	1 *	2,4	U048	B	100 (45.4)
Phenol, 4-chloro-3-methyl	59507	p-Chloro-m-cresol 4-Chloro-m-cresol	1 *	2,4	U039	D	5000 (2270)
Phenol, 2-cyclohexyl-4,6-dinitro-	131895	2-Cyclohexyl-4,6-dinitrophenol	1 *	4	P034	B	100 (45.4)
Phenol, 2,4-dichloro-	120832	2,4-Dichlorophenol	1 *	2,4	U081	B	100 (45.4)
Phenol, 2,6-dichloro-	87650	2,6-Dichlorophenol	1 *	4	U082	B	100 (45.4)
Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	56531	Diethylstilbestrol	1 *	4	U089	X	1 (0.454)
Phenol, 2,4-dimethyl-	105679	2,4-Dimethylphenol	1 *	2,4	U101	B	100 (45.4)
Phenol, 2,4-dinitro-	51285	2,4-Dinitrophenol	1000	1,2,4	P048	A	10 (4.54)
Phenol, methyl-	1319773	Cresol(s) Cresylic acid	1000	1,4	U052	C	1000 (454)
m-Cresol	108394	m-Cresylic acid					
o-Cresol	95487	o-Cresylic acid					
p-Cresol	106445	p-Cresylic acid					
Phenol, 2-methyl-4,6-dinitro-	534521	4,6-Dinitro-o-cresol and salts	1 *	2,4	P047	A	10 (4.54)
Phenol, 2,2'-methylenebis[3,4,6-trichloro-	70304	Hexachlorophene	1 *	4	U132	B	100 (45.4)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
Phenol, 2-(1-methylpropyl)-4,6-dinitro	88857	Dinoseb	1*	4	P020	C	1000 (454)
Phenol, 4-nitro-	100027	p-Nitrophenol 4-Nitrophenol	1000	1,2,4	U170	B	100 (45.4)
Phenol, pentachloro-	87865	Pentachlorophenol	10	1,2,4	U242	A	10 (4.54)
Phenol, 2,3,4,6-tetrachloro-	58902	2,3,4,6-Tetrachlorophenol	1*	4	U212	A	10 (4.54)
Phenol, 2,4,5-trichloro-	95954	2,4,5-Trichlorophenol	10	1,4	U230	A	10 (4.54)
Phenol, 2,4,6-trichloro-	88062	2,4,6-Trichlorophenol	10	1,2,4	U231	A	10 (4.54)
Phenol, 2,4,6-trinitro-, ammonium salt	131748	Ammonium picrate	1*	4	P009	A	10 (4.54)
L-Phenylalanine, 4-[bis(2-chloroethyl) amino]	148823	Melphalan	1*	4	U150	X	1 (0.454)
1,10-(1,2-Phenylene)pyrene	193395	Indeno(1,2,3-cd)pyrene	1*	2,4	U137	B	100 (45.4)
Phenylmercury acetate	62384	Mercury, (acetato-O)phenyl-	1*	4	P092	B	100 (45.4)
Phenylthiourea	103855	Thiourea, phenyl-	1*	4	P093	B	100 (45.4)
Phorate	298022	Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester	1*	4	P094	A	10 (4.54)
Phosgene	75445	Carbonic dichloride	5000	1,4	P095	A	10 (4.54)
Phosphine	7803512		1*	4	P096	B	100 (45.4)
Phosphoric acid	7664382		5000	1		D	5000 (2270)
Phosphoric acid, diethyl 4-nitrophenyl ester	311455	Diethyl-p-nitrophenyl phosphate	1*	4	P041	B	100 (45.4)
Phosphoric acid, lead(2+) salt (2:3)	7446277	Lead phosphate	1*	4	U145		‡
Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester	298044	Disulfoton	1	1,4	P039	X	1 (0.454)
Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester	298022	Phorate	1*	4	P094	A	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-methyl ester	3288582	O,O-Diethyl S-methyl dithiophosphate	1*	4	U087	D	5000 (2270)
Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester	60515	Dimethoate	1*	4	P044	A	10 (4.54)
Phosphorofluoridic acid, bis(1-methylethyl) ester	55914	Diisopropylfluorophosphate	1*	4	P043	B	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56382	Parathion	1	1,4	P089	A	10 (4.54)
Phosphorothioic acid, O,[4-[(dimethylamino) sulfonyl]phenyl]O,O-dimethyl ester	52857	Famphur	1*	4	P097	C	1000 (454)
Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	298000	Methyl parathion	100	1,4	P071	B	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester.	297972	O,O-Diethyl O-pyrazinyl phosphorothioate	1*	4	P040	B	100 (45.4)
Phosphorus	7723140		1	1		X	1 (0.454)
Phosphrous oxychloride	10025873		5000	1		C	1000 (454)
Phosphorus pentasulfide	1314803	Phosphorus sulfide Sulfur phosphide	100	1,4	U189	B	100 (45.4)
Phosphorus sulfide	1314803	Phosphorus pentasulfide Sulfur phosphide	100	1,4	U189	B	100 (45.4)
Phosphorus trichloride	7719122		5000	1		C	1000 (454)
PHTHALATE ESTERS	N.A.		1*	2			**
Phthalic anhydride	85449	1,3-Isobenzofurandione	1*	4	U190	D	5000 (2270)
2-Picoline	109068	Pyridine, 2-methyl-	1*	4	U191	D	5000 (2270)
Piperidine, 1-nitroso-	100754	N-Nitrosopiperidine	1*	4	U179	A	10 (4.54)
Plumbane, tetraethyl-	78002	Tetraethyl lead	100	1,4	P110	A	10 (4.54)
POLYCHLORINATED BIPHENYLS (PCBs)	1336363		10	1,2		X	1 (0.454)
Aroclor 1016	12674112	POLYCHLORINATED BIPHENYLS (PCBs)	......	......			......
Aroclor 1221	11104282	POLYCHLORINATED BIPHENYLS (PCBs)	......	......			......
Aroclor 1232	11141165	POLYCHLORINATED BIPHENYLS (PCBs)	......	......			......
Aroclor 1242	53469219	POLYCHLORINATED BIPHENYLS (PCBs)	......	......			......
Aroclor 1248	12672296	POLYCHLORINATED BIPHENYLS (PCBs)	......	......			......
Aroclor 1254	11097691	POLYCHLORINATED BIPHENYLS (PCBs)	......	......			......
Aroclor 1260	11096825	POLYCHLORINATED BIPHENYLS (PCBs)	......	......			......
POLYNUCLEAR AROMATIC HYDROCARBONS.	N.A.		1*	2			**
Potassium arsenate	7784410		1000	1		X	1 (0.454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Potassium arsenite	10124502		1000	1		X	1 (0.454)
Potassium bichromate	7778509		1000	1		A	10 (4.54)
Potassium chromate	7789006		1000	1		A	10 (4.54)
Potassium cyanide	151508	Potassium cyanide K (CN)	10	1,4	P098	A	10 (4.54)
Potassium cyanide K(CN)	151508	Potassium cyanide	10	1,4	P098	A	10 (4.54)
Potassium hydroxide	1310583		1000	1		C	1000 (454)
Potassium permanganate	7722647		100	1		B	100 (45.4)
Potassium silver cyanide	506616	Argentate (1-), bis(cyano-C)-, potassium	1*	4	P099	X	1 (0.454)
Pronamide	23950585	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	1*	4	U192	D	5000 (2270)
Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	116063	Aldicarb	1*	4	P070	X	1 (0.454)
1-Propanamine	107108	n-Propylamine	1*	4	U194	D	5000 (2270)
1-Propanamine, N-propyl-	142847	Dipropylamine	1*	4	U110	D	5000 (2270)
1-Propanamine, N-nitroso-N-propyl-	621647	Di-n-propylnitrosamine	1*	2,4	U111	A	10 (4.54)
Propane, 1,2-dibromo-3-chloro-	96128	1,2-Dibromo-3-chloropropane	1*	4	U066	X	1 (0.454)
Propane, 2-nitro-	79469	2-Nitropropane	1*	4	U171	A	10 (4.54)
1,3-Propane sultone	1120714	1,2-Oxathiolane, 2,2-dioxide	1*	4	U193	A	10 (4.54)
Propane, 1,2-dichloro-	78875	Propylene dichloride 1,2-Dichloropropane	5000	1,2,4	U083	C	1000 (454)
Propanedinitrile	109773	Malononitrile	1*	4	U149	C	1000 (454)
Propanenitrile	107120	Ethyl cyanide	1*	4	P101	A	10 (4.54)
Propanenitrile, 3-chloro-	542767	3-Chloropropionitrile	1*	4	P027	C	1000 (454)
Propanenitrile, 2-hydroxy-2-methyl-	75865	Acetone cyanohydrin 2-Methyllactonitrile	10	1,4	P069	A	10 (4.54)
Propane, 2,2'-oxybis[2-chloro-	108601	Dichloroisopropyl ether	1*	2,4	U027	C	1000 (454)
1,2,3-Propanetriol, trinitrate-	55630	Nitroglycerine	1*	4	P081	A	10 (4.54)
1-Propanol, 2,3-dibromo-, phosphate (3:1)	126727	Tris(2,3-dibromopropyl) phosphate	1*	4	U235	A	10 (4.54)
1-Propanol, 2-methyl-	78831	Isobutyl alcohol	1*	4	U140	D	5000 (2270)
2-Propanone	67641	Acetone	1*	4	U002	D	5000 (2270)
2-Propanone, 1-bromo-	598312	Bromoacetone	1*	4	P017	C	1000 (454)
Propargite	2312358		10	1		A	10 (4.54)
Propargyl alcohol	107197	2-Propyn-1-ol	1*	4	P102	C	1000 (454)
2-Propenal	107028	Acrolein	1	1,2,4	P003	X	1 (0.454)
2-Propenamide	79061	Acrylamide	1*	4	U007	D	5000 (2270)
1-Propene, 1,1,2,3,3,3-hexachloro-	1888717	Hexachloropropene	1*	4	U243	C	1000 (454)
1-Propene, 1,3-dichloro-	542756	1,3-Dichloropropene	5000	1,2,4	U084	B	100 (45.4)
2-Propenenitrile	107131	Acrylonitrile	100	1,2,4	U009	B	100 (45.4)
2-Propenenitrile, 2-methyl-	126987	Methacrylonitrile	1*	4	U152	C	1000 (454)
2-Propenoic acid	79107	Acrylic acid	1*	4	U008	D	5000 (2270)
2-Propenoic acid, ethyl ester	140885	Ethyl acrylate	1*	4	U113	C	1000 (454)
2-Propenoic acid, 2-methyl-, ethyl ester	97632	Ethyl methacrylate	1*	4	U118	C	1000 (454)
2-Propenoic acid, 2-methyl-, methyl ester	80626	Methyl methacrylate	5000	1,4	U162	C	1000 (454)
2-Propen-1-ol	107186	Allyl alcohol	100	1,4	P005	B	100 (45.4)
Propionic acid	79094		5000	1		D	5000 (2270)
Propionic acid, 2-(2,4,5-trichlorophenoxy)-	93721	Silvex (2,4,5-TP) 2,4,5-TP acid	100	1,4	U233	B	100 (45.4)
Propionic anhydride	123626		5000	1		D	5000 (2270)
n-Propylamine	107108	1-Propanamine	1*	4	U194	D	5000 (2270)
Propylene dichloride	78875	Propane, 1,2-dichloro- 1,2-Dichloropropane	5000	1,2,4	U083	C	1000 (454)
Propylene oxide	75569		5000	1		B	100 (45.4)
1,2-Propylenimine	75558	Aziridine, 2-methyl-	1*	4	P067	X	1 (0.454)
2-Propyn-1-ol	107197	Propargyl alcohol	1*	4	P102	C	1000 (454)
Pyrene	129000		1*	2		D	5000 (2270)
Pyrethrins	121299 121211 8003347		1000	1		X	1 (0.454)
3,6-Pyridazinedione, 1,2-dihydro-	123331	Maleic hydrazide	1*	4	U148	D	5000 (2270)
4-Pyridinamine	504245	4-Aminopyridine	1*	4	P008	C	1000 (454)
Pyridine	110861		1*	4	U196	C	1000 (454)
Pyridine, 2-methyl-	109068	2-Picoline	1*	4	U191	D	5000 (2270)
Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-	54115	Nicotine, & salts	1*	4	P075	B	100 (45.4)
2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	66751	Uracil mustard	1*	4	U237	A	10 (4.54)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	56042	Methylthiouracil	1*	4	U164	A	10 (4.54)
Pyrrolidine, 1-nitroso-	930552	N-Nitrosopyrrolidine	1*	4	U180	X	1 (0.454)
Quinoline	91225		1000	1		D	5000 (2270)
RADIONUCLIDES	N.A.		1*	3			§
Reserpine	50555	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy-, methyl ester (3beta, 16beta,17alpha,18beta,20alpha)-	1*	4	U200	D	5000 (2270)
Resorcinol	108463	1,3-Benzenediol	1000	1,4	U201	D	5000 (2270)
Saccharin and salts	81072	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	1*	4	U202	B	100 (45.4)
Safrole	94597	1,3-Benzodioxole, 5-(2-propenyl)-	1*	4	U203	B	100 (45.4)
Selenious acid	7783008		1*	4	U204	A	10 (4.54)
Selenious acid, dithallium (1+) salt	12039520	Thallium selenite	1*	4	P114	C	1000 (454)
Selenium ††	7782492		1*	2		B	100 (45.4)
SELENIUM AND COMPOUNDS	N.A.		1*	2			**
Selenium dioxide	7446084	Selenium oxide	1000	1,4	U204	A	10 (4.54)
Selenium oxide	7446084	Selenium dioxide	1000	1,4	U204	A	10 (4.54)
Selenium sulfide	7488564	Selenium sulfide SeS2	1*	4	U205	A	10 (4.54)
Selenium sulfide SeS2	7488564	Selenium sulfide	1*	4	U205	A	10 (4.54)
Selenourea	630104		1*	4	P103	C	1000 (454)
L-Serine, diazoacetate (ester)	115026	Azaserine	1*	4	U015	X	1 (0.454)
Silver ††	7440224		1*	2		C	1000 (454)
SILVER AND COMPOUNDS	N.A.		1*	2			**
Silver cyanide	506649	Silver cyanide Ag (CN)	1*	4	P104	X	1 (0.454)
Silver cyanide Ag (CN)	506649	Silver cyanide	1*	4	P104	X	1 (0.454)
Silver nitrate	7761888		1	1		X	1 (0.454)
Silvex (2,4,5-TP)	93721	Propionic acid, 2-(2,4,5-trichlorophenoxy)- 2,4,5-TP acid	100	1,4	U233	B	100 (45.4)
Sodium	7440235		1000	1		A	10 (4.54)
Sodium arsenate	7631892		1000	1		X	1 (0.454)
Sodium arsenite	7784465		1000	1		X	1 (0.454)
Sodium azide	26628228		1*	4	P105	C	1000 (454)
Sodium bichromate	10588019		1000	1		A	10 (4.54)
Sodium bifluoride	1333831		5000	1		B	100 (45.4)
Sodium bisulfite	7631905		5000	1		D	5000 (2270)
Sodium chromate	7775113		1000	1		A	10 (4.54)
Sodium cyanide	143339	Sodium cyanide Na (CN)	10	1,4	P106	A	10 (4.54)
Sodium cyanide Na (CN)	143339	Sodium cyanide	10	1,4	P106	A	10 (4.54)
Sodium dodecylbenzenesulfonate	25155300		1000	1		C	1000 (454)
Sodium fluoride	7681494		5000	1		C	1000 (454)
Sodium hydrosulfide	16721805		5000	1		D	5000 (2270)
Sodium hydroxide	1310732		1000	1		C	1000 (454)
Sodium hypochlorite	7681529 10022705		100	1		B	100 (45.4)
Sodium methylate	124414		1000	1		C	1000 (454)
Sodium nitrite	7632000		100	1		B	100 (45.4)
Sodium phosphate, dibasic	7558794 10039324 10140655		5000	1		D	5000 (2270)
Sodium phosphate, tribasic	7601549 7758294 7785844 10101890 10124568 10361894		5000	1		D	5000 (2270)
Sodium selenite	10102188 7782823		1000	1		B	100 (45.4)
Streptozotocin	18883664	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]- Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-	1*	4	U206	X	1 (0.454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Strontium chromate	7789062		1000	1		A	10 (4.54)
Strychnidin-10-one	57249	Strychnine, & salts	10	1,4	P108	A	10 (4.54)
Strychnidin-10-one, 2,3-dimethoxy-	357573	Brucine	1*	4	P018	B	100 (45.4)
Strychnine, & salts	57249	Strychnidin-10-one	10	1,4	P108	A	10 (4.54)
Styrene	100425		1000	1		C	1000 (454)
Sulfur monochloride	12771083		1000	1		C	1000 (454)
Sulfur phosphide	1314803	Phosphorus pentasulfide Phosphorus sulfide	100	1,4	U189	B	100 (45.4)
Sulfuric acid	7664939 8014957		1000	1		C	1000 (454)
Sulfuric acid, dithallium (1+) salt	7446186 10031591	Thallium (I) sulfate	1000	1,4	P115	B	100 (45.4)
Sulfuric acid, dimethyl ester	77781	Dimethyl sulfate	1*	4	U103	B	100 (45.4)
2,4,5-T acid	93765	Acetic acid, (2,4,5-trichlorophenoxy) 2,4,5-T	100	1,4	U232	C	1000 (454)
2,4,5-T amines	2008460 1319728 3813147 6369966 6369977		100	1		D	5000 (2270)
2,4,5-T esters	93798 1928478 2545597 25168154 61792072		100	1		C	1000 (454)
2,4,5-T salts	13560991		100	1		C	1000 (454)
2,4,5-T	93765	Acetic acid, (2,4,5-trichlorophenoxy) 2,4,5-T acid	100	1,4	U232	C	1000 (454)
TDE	72548	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro- DDD 4,4' DDD	1	1,2,4	U060	X	1 (0.454)
1,2,4,5-Tetrachlorobenzene	95943	Benzene, 1,2,4,5-tetrachloro-	1*	4	U207	D	5000 (2270)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1746016		1*	2		X	1 (0.454)
1,1,1,2-Tetrachloroethane	630206	Ethane, 1,1,1,2-tetrachloro-	1*	4	U208	B	100 (45.4)
1,1,2,2-Tetrachloroethane	79345	Ethane, 1,1,2 2-tetrachloro-	1*	2,4	U209	B	100 (45.4)
Tetrachloroethene	127184	Ethene, tetrachloro- Perchloroethylene Tatrachloroethylene	1*	2,4	U210	B	100 (45.4)
Tetrachloroethylene	127184	Ethene, tetrachloro- Perchloroethylene Tetrachloroethene	1*	2,4	U210	B	100 (45.4)
2,3,4,6-Tetrachlorophenol	58902	Phenol, 2,3,4,6-tetrachloro-	1*	4	U212	A	10 (4.54)
Tetraethyl lead	78002	Plumbane, tetraethyl-	100	1,4	P110	A	10 (4.54)
Tetraethyl pyrophosphate	107493	Diphosphoric acid, tetraethyl ester	100	1,4	P111	A	10 (4.54)
Tetraethyldithiopyrophosphate	3689245	Thiodiphosphoric acid, tetraethyl ester	1*	4	P109	B	100 (45.4)
Tetrahydrofuran	109999	Furan, tetrahydro-	1*	4	U213	C	1000 (454)
Tetranitromethane	509148	Methane, tetranitro-	1*	4	P112	A	10 (4.54)
Tetraphosphoric acid, hexaethyl ester	757584	Hexaethyl tetraphosphoate	1*	4	P062	B	100 (45.4)
Thallic oxide	1314325	Thallium oxide Tl203	1*	4	P113	B	100 (45.4)
Thallium ††	7440280		1*	2		C	1000 (454)
Thallium and compounds	N.A.		1*	2			**
Thallium (I) acetate	563688	Acetic acid, thallium(1+) salt	1*	4	U214	B	100 (45.4)
Thallium (I) carbonate	6533739	Carbonic acid, dithallium(1+) salt	1*	4	U215	B	100 (45.4)
Thallium (I) chloride	7791120	Thallium chloride TlCl	1*	4	U216	B	100 (45.4)
Thallium chloride TlCl	7791120	Thallium(I) chloride	1*	4	U216	B	100 (45.4)
Thallium (I) nitrate	10102451	Nitric acid, thallium (1+) salt	1*	4	U217	B	100 (45.4)
Thallium oxide Tl203	1314325	Thallic oxide	1*	4	P113	B	100 (45.4)
Thallium selenite	12039520	Selenious acid, dithallium(1+) salt	1*	4	P114	C	1000 (454)
Thallium (I) sulfate	7446186 10031591	Sulfuric acid, dithallium(1+) salt	1000	1,4	P115	B	100 (45.4)
Thioacetamide	62555	Ethanethioamide	1*	4	U218	A	10 (4.54)
Thiodiphosphoric acid, tetraethyl ester	3689245	Tetraethyldithiopyrophosphate	1*	4	P109	B	100 (45.4)
Thiofanox	39196184	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O[(methylamino)carbonyl] oxime	1*	4	P045	B	100 (45.4)

[Sec. 302.4(b)]

TABLE 302.4 — LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES — Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA Waste Number	Category	Pounds (Kg)
Thioimidodicarbonic diamide [(H2N)C(S)] 2NH.	541537	Dithiobiuret	1 •	4	P049	B	100 (45.4)
Thiomethanol	74931	Methanethiol Methylmercaptan	100	1,4	U153	B	100 (45.4)
Thioperoxydicarbonic diamide [(H2N)C(S)] 2S2, tetramethyl-.	137268	Thiram	1 •	4	U244	A	10 (4.54)
Thiophenol	108985	Benzenethiol	1 •	4	P014	B	100 (45.4)
Thiosemicarbazide	79196	Hydrazinecarbothioamide	1 •	4	P116	B	100 (45.4)
Thiourea	62566		1 •	4	U219	A	10 (4.54)
Thiourea, (2-chlorophenyl)	5344821	1-(o-Chlorophenyl)thiourea	1 •	4	P026	B	100 (45.4)
Thiourea, 1-naphthalenyl-	86884	alpha-Naphthylthiourea	1 •	4	P072	B	100 (45.4)
Thiourea, phenyl-	103855	Phenylthiourea	1 •	4	P093	B	100 (45.4)
Thiram	137268	Thioperoxydicarbonic diamide [(H2N)C(S)] 2S2, tetramethyl-	1 •	4	U244	A	10 (4.54)
Toluene	108883	Benzene, methyl-	1000	1,2,4	U220	C	1000 (454)
Toluenediamine	95807 496720 823405 25376458	Benzenediamine, ar-methyl-	1 •	4	U221	A	10 (4.54)
Toluene diisocyanate	584849 91087 26471625	Benzene, 1,3-diisocyanatomethyl-	1 •	4	U223	B	100 (45.4)
o-Toluidine	95534	Benzenamine, 2-methyl-	1 •	4	U328	B	100 (45.4)
p-Toluidine	106490	Benzenamine, 4-methyl-	1 •	4	U353	B	100 (45.4)
o-Toluidine hydrochloride	636215	Benzenamine, 2-methyl, hydrochloride	1 •	4	U222	B	100 (45.4)
Toxaphene	8001352	Camphene, octachloro-	1 •	1,2,4	P123	X	1 (0.454)
2,4,5-TP acid	93721	Propionic acid, 2-(2,4,5 trichlorophenoxy)- Silvex (2,4,5-TP)	100	1,4	U233	B	100 (45.4)
2,4,5-TP esters	32534955		100	1		B	100 (45.4)
1H-1,2,4-Triazol-3-amine	61825	Amitrole	1 •	4	U011	A	10 (4.54)
Trichlorfon	52686		1000	1		B	100 (45.4)
1,2,4-Trichlorobenzene	120821		1 •	2		B	100 (45.4)
1,1,1-Trichloroethane	71556	Ethane, 1,1,1-trichloro- Methyl chloroform	1 •	2,4	U226	C	1000 (454)
1,1,2-Trichloroethane	79005	Ethane, 1,1,2-trichloro-	1 •	2,4	U227	B	100 (45.4)
Trichloroethene	79016	Ethene, trichloro- Trichloroethylene	1000	1,2,4	U228	B	100 (45.4)
Trichloroethylene	79016	Ethene, trichloro- Trichloroethene	1000	1,2,4	U228	B	100 (45.4)
Trichloromethanesulfenyl chloride	594423	Methanesulfenyl chloride, trichloro-	1 •	4	P118	B	100 (45.4)
Trichloromonofluoromethane	75694	Methane, trichlorofluoro-	1 •	4	U121	D	5000 (2270)
Trichlorophenol	25167822		10	1		A	10 (4.54)
2,3,4-Trichlorophenol	15950660		....				
2,3,5-Trichlorophenol	933788		....				
2,3,6-Trichlorophenol	933755		....				
2,4,5-Trichlorophenol	95954	Phenol, 2,4,5-trichloro-	10 •	1,4	U230	A	10 (4.54)
2,4,6-Trichlorophenol	88062	Phenol, 2,4,6-trichloro-	10 •	1,2,4	U231	A	10 (4.54)
3,4,5-Trichlorophenol	609198		....				
2,4,5-Trichlorophenol	95954	Phenol, 2,4,5-trichloro-	10 •	1,4	U230	A	10 (4.54)
2,4,6-Trichlorophenol	88062	Phenol, 2,4,6-trichloro-	10	1,2,4	U231	A	10 (4.54)
Triethanolamine dodecylbenzenesulfonate	27323417		1000	1		C	1000 (454)
Triethylamine	121448		5000	1		D	5000 (2270)
Trimethylamine	75503		1000	1		B	100 (45.4)
1,3,5-Trinitrobenzene	99354	Benzene, 1,3,5-trinitro-	1 •	4	U234	A	10 (4.54)
1,3,5-Trioxane, 2,4,6-trimethyl-	123637	Paraldehyde	1 •	4	U182	C	1000 (454)
Tris(2,3-dibromopropyl) phosphate	126727	1-Propanol, 2,3-dibromo-, phosphate [(3:1)	1 •	4	U235	A	10 (4.54)
Trypan blue	72571	2,7-Naphthalenedisulfonic acid, 3,3'-3,3'-dimethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt	1 •	4	U236	A	10 (4.54)
Unlisted Hazardous Wastes Characteristic of Corrosivity.	N.A.		1 •	4	D002	B	100 (45.4)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Unlisted Hazardous Wastes Characteristic	N.A.		1*	4			
Characteristic of Toxicity:							
Arsenic (D004)	N.A.		*1	4	D004	X	1 (0.454)
Barium (D005)	N.A.		*1	4	D005	C	1,000 (454)
Benzene (D018)	N.A.		1000	1, 2, 3, 4	D018	A	10 (4.54)
Cadmium (D006)	N.A.		*1	4	D006	A	10 (4.54)
Carbon tetrachloride (D019)	N.A.		5,000	1, 2, 4	D019	A	10 (4.54)
Chlordane (D020)	N.A.		1	1, 2, 4	D020	X	1 (0.454)
Chlorobenzene (D021)	N.A.		100	1, 2, 4	D021	B	100 (45.4)
Chloroform (D022)	N.A.		5,000	1, 2, 4	D022	A	10 (4.54)
Chromium (D007)	N.A.		*1	4	D007	A	10 (4.54)
o-Cresol (D023)	N.A.		1,000	1, 4	D023	C	1,000 (454)
m-Cresol (D024)	N.A.		1,000	1, 4	D024	C	1,000 (454)
p-Cresol (D025)	N.A.		1,000	1, 4	D025	C	1,000 (454)
Cresol (D026)	N.A.		1,000	1, 4	D026	C	1,000 (454)
2,4-D (D016)	N.A.		100	1, 4	D016	B	100 (45.4)
1,4-Dichlorobenzene (D027)	N.A.		100	1, 2, 4	D027	B	100 (45.4)
1,2-Dichloroethane (D028)	N.A.		5,000	1, 2, 4	D028	B	100 (45.4)
1,1-Dichloroethylene (D029)	N.A.		5,000	1, 2, 4	D029	B	100 (45.4)
2,4-Dinitrotoluene (D030)	N.A.		1,000	1, 2, 4	D030	A	10 (4.54)
Endrin (D012)	N.A.		1	1, 4	D012	X	1 (0.454)
Heptachlor (and epoxide) (D031)	N.A.		1	1, 2, 4	D031	X	1 (0.454)
Hexachlorobenzene (D032)	N.A.		*1	2, 4	D032	A	10 (4.54)
Hexachlorobutadiene (D033)	N.A.		*1	2, 4	D033	X	1 (0.454)
Hexachloroethane (D034)	N.A.		*1	2, 4	D034	B	100 (45.4)
Lead (D008)	N.A.		*1	4	D008		(#)
Lindane (D013)	N.A.		1	1, 4	D013	X	1 (0.454)
Mercury (D009)	N.A.		*1	4	D009	X	1 (0.454)
Methoxychlor (D014)	N.A.		1	1, 4	D014	X	1 (0.454)
Methyl ethyl ketone (D035)	N.A.		*1	4	D035	D	5,000 (2270)
Nitrobenzene (D036)	N.A.		1,000	1, 2, 4	D036	C	1,000 (454)
Pentachlorophenol (D037)	N.A.		10	1, 2, 4	D037	A	10 (4.54)
Pyridine (D038)	N.A.		*1	4	D038	C	1,000 (454)
Selenium (D010)	N.A.		*1	4	D010	A	10 (4.54)
Silver (D011)	N.A.		*1	4	D011	X	1 (0.454)
Tetrachloroethylene (D039)	N.A.		*1	2, 4	D039	B	100 (45.4)
Toxaphene (D015)	N.A.		1	1, 4	D015	X	1 (0.454)
Trichloroethylene (D040)	N.A.		1000	1, 2, 4	D040	B	100 (45.4)
2,4,5-Trichlorophenol (D041)	N.A.		10	1, 4	D041	A	10 (4.54)
2,4,6-Trichlorophenol (D042)	N.A.		10	1, 2, 4	D042	A	10 (4.54)
2,4,5-TP (D017)	N.A.		100	1, 4	D017	B	100 (45.4)
Vinyl chloride (D043)	N.A.		*1	2, 3, 4	D043	X	1 (0.454)
Unlisted Hazardous Wastes Characteristic of Ignitability.	N.A.		1*	4	D001	B	100 (45.4)
Unlisted Hazardous Wastes Characteristic of Reactivity.	N.A.		1*	4	D003	B	100 (45.4)
Uracil mustard	66751	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	1*	4	U237	A	10 (4.54)
Uranyl acetate	541093		5000	1		B	100 (45.4)
Uranyl nitrate	10102064 36478769		5000	1		B	100 (45.4)
Urea, N-ethyl-N-nitroso-	759739	N-Nitroso-N-ethylurea	1*	4	U176	X	1 (0.454)
Urea, N-methyl-N-nitroso	684935	N-Nitroso-N-methylurea	1*	4	U177	X	1 (0.454)
Vanadic acid, ammonium salt	7803556	Ammonium vanadate	1*	4	P119	C	1000 (454)
Vanadium oxide V2O5	1314621	Vanadium pentoxide	1000	1,4	P120	C	1000 (454)
Vanadium pentoxide	1314621	Vanadium oxide V2O5	1000	1,4	P120	C	1000 (454)
Vanadyl sulfate	27774136		1000	1		C	1000 (454)
Vinyl chloride	75014	Ethene, chloro-	1*	2,3,4	U043	X	1 (0.454)
Vinyl acetate	108054	Vinyl acetate monomer	1000	1		D	5000 (2270)
Vinyl acetate monomer	108054	Vinyl acetate	1000	1		D	5000 (2270)
Vinylamine, N-methyl-N-nitroso-	4549400	N-Nitrosomethylvinylamine	1*	4	P084	A	10 (4.54)
Vinylidene chloride	75354	Ethene, 1,1-dichloro- 1,1-Dichloroethylene	5000	1,2,4	U078	B	100 (45.4)
Warfarin, & salts, when present at concentrations greater than 0.3%.	81812	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations greater than 0.3%	1*	4	P001	B	100 (45.4)
Xylene (mixed)	1330207	Benzene, dimethyl	1000	1,4	U239	C	1000 (454)
m-Benzene, dimethyl	108383	m-Xylene					
o-Benzene, dimethyl	95476	o-Xylene					
p-Benzene, dimethyl	106423	p-Xylene					
Xylenol	1300716		1000	1		C	1000 (454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
Yohimban-16-carboxylic acid,11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester (3beta,16beta,17alpha, 18beta, 20alpha)-	50555	Reserpine	1*	4	U200	D	5000 (2270)
Zinc ††	7440666		1*	2		C	1000 (454)
ZINC AND COMPOUNDS	N.A.		1*	2			**
Zinc acetate	557346		1000	1		C	1000 (454)
Zinc ammonium chloride	52628258 14639975 14639986		5000	1		C	1000 (454)
Zinc borate	1332076		1000	1		C	1000 (454)
Zinc bromide	7699458		5000	1		C	1000 (454)
Zinc carbonate	3486359		1000	1		C	1000 (454)
Zinc chloride	7646857		5000	1		C	1000 (454)
Zinc cyanide	557211	Zinc cyanide Zn(CN)2	10	1,4	P121	A	10 (4.54)
Zinc cyanide Zn(CN)2	557211	Zinc cyanide	10	1,4	P121	A	10 (4.54)
Zinc Fluoride	7783495		1000	1		C	1000 (454)
Zinc formate	557415		1000	1		C	1000 (454)
Zinc hydrosulfite	7779864		1000	1		C	1000 (454)
Zinc nitrate	7779886		5000	1		C	1000 (454)
Zinc phenosulfonate	127822		5000	1		D	5000 (2270)
Zinc phosphide	1314847	Zinc phosphide Zn3P2, when present at concentrations greater than 10%	1000	1,4	P122	B	100 (45.4)
Zinc phosphide Zn3P2, when present at concentrations greater than 10%.	1314847	Zinc phosphide	1000	1,4	P122	B	100 (45.4)
Zinc silicofluoride	16871719		5000	1		D	5000 (2270)
Zinc sulfate	7733020		1000	1		C	1000 (454)
Zirconium nitrate	13746899		5000	1		D	5000 (2270)
Zirconium potassium fluoride	16923958		5000	1		C	1000 (454)
Zirconium sulfate	14644612		5000	1		D	5000 (2270)
Zirconium tetrachloride	10026116		5000	1		D	5000 (2270)
F001			1*	4	F001	A	10 (4.54)
The following spent halogenated solvents used in degreasing; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.							
(a) Tetrachloroethylene	127184		1*	2,4	U210	B	100 (45.4)
(b) Trichloroethylene	79016		1000	1,2,4	U228	B	100 (45.4)
(c) Methylene chloride	75092		1*	2,4	U080	C	1000 (454)
(d) 1,1,1-Trichloroethane	71556		1*	2,4	U226	C	1000 (454)
(e) Carbon tetrachloride	56235		5000	1,2,4	U211	A	10 (4.54)
(f) Chlorinated fluorocarbons	N.A.					D	5000 (2270)
F002			1*	4	F002	A	10 (4.54)
The following spent halogenated solvents; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.							
(a) Tetrachloroethylene	127184		1*	2,4	U210	B	100 (45.4)
(b) Methylene chloride	75092		1*	2,4	U080	C	1000 (454)
(c) Trichloroethylene	79016		1000	1,2,4	U228	B	100 (45.4)
(d) 1,1,1-Trichloroethane	71556		1*	2,4	U226	C	1000 (454)
(e) Chlorobenzene	108907		100	1,2,4	U037	B	100 (45.4)
(f) 1,1,2-Trichloro-1,2,2-trifluoroethane	76131					D	5000 (2270)
(g) o-Dischlorobenzene	95501		100	1,2,4	U070	B	100 (45.4)
(h) Trichlorofluoromethane	75694		1*	4	U121	D	5000 (2270)
(i) 1,1,2-Thrichloroethane	79005		1*	2,4	U227	B	100 (45.4)
F003			1*	4	F003	B	100 (45.4)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
F003			1*	4	F003	B	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:							
(a) Xylene	1330207					C	1000 (454)
(b) Acetone	67641					D	5000 (2270)
(c) Ethyl acetate	141786					D	5000 (2270)
(d) Ethylbenzene	100414					C	1000 (454)
(e) Ethyl ether	60297					B	100 (45.4)
(f) Methyl isobutyl ketone	108101					D	5000 (2270)
(g) n-Butyl alcohol	71363					D	5000 (2270)
(h) Cyclohexanone	108941					D	5000 (2270)
(i) Methanol	67561					D	5000 (2270)
F004			1*	4	F004	C	1000 (454)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:							
(a) Cresols/Cresylic acid	1319773		1000	1,4	U052	C	1000 (454)
(b) Nitrobenzene	98953		1000	1,2,4	U169	C	1000 (454)
F005			1*	4	F005	B	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:							
(a) Toluene	108883		1000	1,2,4	U220	C	1000 (454)
(b) Methyl ethyl ketone	78933		1*	4	U159	D	5000 (2270)
(c) Carbon disulfide	75150		5000	1,4	P022	B	100 (45.4)
(d) Isobutanol	78831		1*	4	U140	D	5000 (2270)
(e) Pyridine	110861		1*	4	U196	C	1000 (454)
F006			1*	4	F006	A	10 (4.54)
Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum, (2) tin plating on carbon steel, (3) zinc plating (segregated basis) on carbon steel, (4) aluminum or zinc-aluminum plating on carbon steel, (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel, and (6) chemical etching and milling of aluminum.							
F007			1*	4	F007	A	10 (4.54)
Spent cyanide plating bath solutions from electroplating operations.							
F008			1*	4	F008	A	10 (4.54)
Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.							
F009			1*	4	F009	A	10 (4.54)
Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.							

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
F010 Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.			1*	4	F010	A	10 (4.54)
F011 Spent cyanide solution from salt bath pot cleaning from metal heat treating operations.			1*	4	F011	A	10 (4.54)
F012 Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.			1*	4	F012	A	10 (4.54)
F019 Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating in an exclusive conversion coating process.			1*	4	F019	A	10 (4.54)
F020 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri-or-tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. (This listing does include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.)			1*	4	F020	X	1 (0.454)
F021 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.			1*	4	F021	X	1 (0.454)
F022 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.			1*	4	F022	X	1 (0.454)
F023 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate or component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5-trichlorophenol.)			1*	4	F023	X	1 (0.454)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
F024 Wastes, including but not limited to distillation residues, heavy ends, tars, and reactor cleanout wastes, from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes. (This listing does not include light ends, spent filters and filter aids, spent dessicants(sic), wastewater, wastewater treatment sludges, spent catalysts, and wastes listed in Section 261.32).			1*	4	F024	X	1 (0.454)
F025 Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.			1*	4	F025	X	**1(0.454)
F026 Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.			1*	4	F026	X	1 (0.454)
F027 Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from those chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component).				4	F027	X	1 (0.454)
F028 Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Wastes Nos. F020, F021, F022, F023, F026, and F027.			1*	4	F028	X	1 (0.454)
K001 Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.			1*	4	K001	X	1 (0.454)
K002 Wastewater treatment sludge from the production of chrome yellow and orange pigments.			1*	4	K002		#
K003 Wastewater treatment sludge from the production of molybdate orange pigments.			1*	4	K003		#
K004 Wastewater treatment sludge from the production of zinc yellow pigments.			1*	4	K004	A	10 (4.54)
K005 Wastewater treatment sludge from the production of chrome green pigments.			1*	4	K005		#
K006 Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).			1*	4	K006	A	10 (4.54)
K007 Wastewater treatment sludge from the production of iron blue pigments.			1*	4	K007	A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
K008 Oven residue from the production of chrome oxide green pigments.			1*	4	K008	A	10 (4.54)
K009 Distillation bottoms from the production of acetaldehyde from ethylene.			1*	4	K009	A	10 (4.54)
K010 Distillation side cuts from the production of acetaldehyde from ethylene.			1*	4	K010	A	10 (4.54)
K011 Bottom stream from the wastewater stripper in the production of acrylonitrile.			1*	4	K011	A	10 (4.54)
K013 Bottom stream from the acetonitrile column in the production of acrylonitrile.			1*	4	K013	A	10 (4.54)
K014 Bottoms from the acetonitrile purification column in the production of acrylonitrile.			1*	4	K014	D	5000 (2270)
K015 Still bottoms from the distillation of benzyl chloride.			1*	4	K015	A	10 (4.54)
K016 Heavy ends or distillation residues from the production of carbon tetrachloride.			1*	4	K016	X	1 (0.454)
K017 Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.			1*	4	K017	A	10 (4.54)
K018 Heavy ends from the fractionation column in ethyl chloride production.			1*	4	K018	X	1 (0.454)
K019 Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.			1*	4	K019	X	1 (0.454)
K020 Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.			1*	4	K020	X	1 (0.454)
K021 Aqueous spent antimony catalyst waste from fluoromethanes production.			1*	4	K021	A	10 (4.54)
K022 Distillation bottom tars from the production of phenol/acetone from cumene.			1*	4	K022	X	1 (0.454)
K023 Distillation light ends from the production of phthalic anhydride from naphthalene.			1*	4	K023	D	5000 (2270)
K024 Distillation bottoms from the production of phthalic anhydride from naphthalene.			1*	4	K024	D	5000 (2270)
K025 Distillation bottoms from the production of nitrobenzene by the nitration of benzene.			1*	4	K025	A	10 (4.54)
K026 Stripping still tails from the production of methyl ethyl pyridines.			1*	4	K026	C	1000 (454)

[Sec. 302.4(b)]

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TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
K027 Centrifuge and distillation residues from toluene diisocyanate production.			1*	4	K027	A	10 (4.54)
K028 Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.			1*	4	K028	X	1 (0.454)
K029 Waste from the product steam stripper in the production of 1,1,1-trichloroethane.			1*	4	K029	X	1 (0.454)
K030 Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.			1*	4	K030	X	1 (0.454)
K031 By-product salts generated in the production of MSMA and cacodylic acid.			1*	4	K031	X	1 (0.454)
K032 Wastewater treatment sludge from the production of chlordane.			1*	4	K032	A	10 (4.54)
K033 Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.			1*	4	K033	A	10 (4.54)
K034 Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.			1*	4	K034	A	10 (4.54)
K035 Wastewater treatment sludges generated in the production of creosote.			1*	4	K035	X	1 (0.454)
K036 Still bottoms from toluene reclamation distillation in the production of disulfoton.			1*	4	K036	X	1 (0.454)
K037 Wastewater treatment sludges from the production of disulfoton.			1*	4	K037	X	1 (0.454)
K038 Wastewater from the washing and stripping of phorate production.			1*	4	K038	A	10 (4.54)
K039 Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.			1*	4	K039	A	10 (4.54)
K040 Wastewater treatment sludge from the production of phorate.			1*	4	K040	A	10 (4.54)
K041 Wastewater treatment sludge from the production of toxaphene.			1*	4	K041	X	1 (0.454)
K042 Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.			1*	4	K042	A	10 (4.54)

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
K043			1*	4	K043	A	10 (4.54)
2,6-Dichlorophenol waste from the production of 2,4-D.							
K044			1*	4	K044	A	10 (4.54)
Wastewater treatment sludges from the manufacturing and processing of explosives.							
K045			1*	4	K045	A	10 (4.54)
Spent carbon from the treatment of wastewater containing explosives.							
K046			1*	4	K046	B	100 (45.4)
Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.							
K047			1*	4	K047	A	10 (4.54)
Pink/red water from TNT operations.							
K048			1*	4	K048		#
Dissolved air flotation (DAF) float from the petroleum refining industry.							
K049			1*	4	K049		#
Slop oil emulsion solids from the petroleum refining industry.							
K050			1*	4	K050	A	10 (4.54)
Heat exchanger bundle cleaning sludge from the petroleum refining industry.							
K051			1*	4	K051		#
API separator sludge from the petroleum refining industry.							
K052			1*	4	K052	A	10 (4.54)
Tank bottoms (leaded) from the petroleum refining industry.							
K060			1*	4	K060	X	1 (0.454)
Ammonia still lime sludge from coking operations.							
K061			1*	4	K061		#
Emission control dust/sludge from the primary production of steel in electric furnaces.							
K062			1*	4	K062		#
Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332).							
K064			1*	4	K064		##
Acid plant blowdown slurry/sludge resulting from thickening of blowdown slurry from primary copper production.							
K065			1*	4	K065		##
Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.							
K066			1*	4	K066		##

[Sec. 302.4(b)]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production. K069			1*	4	K069		#
Emission control dust/sludge from secondary lead smelting. K071			1*	4	K071	X	1 (0.454)
Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used. K073			1*	4	K073	A	10 (4.54)
Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production. K083			1*	4	K083	B	100 (45.4)
Distillation bottoms from aniline extraction. K084			1*	4	K084	X	1 (0.454)
Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds. K085			1*	4	K085	A	10 (4.54)
Distillation or fractionation column bottoms from the production of chlorobenzenes. K086			1*	4	K086		#
Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead. K087			1*	4	K087	B	100 (45.4)
Decanter tank tar sludge from coking operations. K088			1*	4	K088		** **
Spent potliners from primary aluminum reduction. K090			1*	4	K090		** **
Emission control dust or sludge from ferrochromiumsilicon production. K091			1	4	K091		** **
Emission control dust or sludge from ferrochromium production. K093			1*	4	K093	D	5000 (2270)
Distillation light ends from the production of phthalic anhydride from ortho-xylene. K094			1*	4	K094	D	5000 (2270)
Distillation bottoms from the production of phthalic anhydride from ortho-xylene. K095			1*	4	K095	B	100 (45.4)
Distillation bottoms from the production of 1,1,1-trichloroethane.							

[Sec. 302.4(b)]

TABLE 302.4 — LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES — Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory			Final RQ	
			RQ	Code †	RCRA Waste Number	Category	Pounds (Kg)
K096 Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.			1 *	4	K096	B	100 (45.4)
K097 Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.			1 *	4	K097	X	1 (0.454)
K098 Untreated process wastewater from the production of toxaphene.			1 *	4	K098	X	1 (0.454)
K099 Untreated wastewater from the production of 2,4-D.			1 *	4	K099	A	10 (4.54)
K100 Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.			1 *	4	K100		#
K101 Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.			1 *	4	K101	X	1 (0.454)
K102 Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.			1 *	4	K102	X	1 (0.454)
K103 Process residues from aniline extraction from the production of aniline.			1 *	4	K103	B	100 (45.4)
K104 Combined wastewater streams generated from nitrobenzene/aniline production.			1 *	4	K104	A	10 (4.54)
K105 Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.			1 *	4	K105	A	10 (4.54)
K106 Wastewater treatment sludge from the mercury cell process in chlorine production.			1 *	4	K106	X	1 (0.454)
K107 Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.			10	4	K107	X	10 (4.54)
K108 Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.			10	4	K108	X	10 (4.54)
K109 Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.			10	4	K109	X	10 (4.54)
K110 Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.			10	4	K110	X	10 (4.54)
K111 Product washwaters from the production of dinitrotoluene via nitration of toluene.			1 *	4	K111	A	10 (4.54)
K112 Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.			1 *	4	K112	A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous Substance	CASRN	Regulatory Synonyms	Statutory RQ	Statutory Code †	Statutory RCRA Waste Number	Final RQ Category	Final RQ Pounds (Kg)
K113			1*	4	K113	A	10 (4.54)
Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.							
K114			1*	4	K114	A	10 (4.54)
Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.							
K115			1*	4	K115	A	10 (4.54)
Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.							
K116			1*	4	K116	A	10 (4.54)
Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.							
K117			1*	4	K117	X	1 (0.454)
Wastewater from the reaction vent gas scrubber in the production of ethylene bromide via bromination of ethene.							
K118			1*	4	K118	X	1 (0.454)
Spent absorbent solids from purification of ethylene dibromide in the production of ethylene dibromide.							
K123			1*	4	K123	A	10 (4.54)
Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts.							
K124			1*	4	K124	A	10 (4.54)
Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.							
K125			1*	4	K125	A	10 (4.54)
Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.							
K126			1*	4	K126	A	10 (4.54)
Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.							
				4	K131	X	100(45.4)
Wastewater from the reactor and spent sulfuric acid from the acid dryer in the production of methyl bromide.			100				
K132				4	K132	X	1000(454)
Spent absorbent and wastewater solids from the production of methyl bromide.			1000				
K136			1*	4	K136	X	1 (0.454)
Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.							

† Indicates the statutory source as defined by 1, 2, 3, and 4 below.
‡ No reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 100 micrometers (0.004 inches).
††† The RQ for asbestos is limited to friable forms only.
1—indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA Section 311(b)(4).
2—indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA Section 307(a).
3—indicates that the statutory source for designation of this hazardous substance under CERCLA is CAA Section 112.
4—indicates that the statutory source for designation of this hazardous substance under CERCLA is RCRA Section 3001.
1*—indicates that the 1-pound RQ is a CERCLA statutory RQ.
# Indicates that the RQ is subject to change when the assessment of potential carcinogenicity is completed.
The Agency may adjust the statutory RQ for this hazardous substance in a future rulemaking; until then the statutory RQ applies.
§—The adjusted RQs for radionuclides may be found in Appendix B to this table.
**—indicates that no RQ is being assigned to the generic or broad class.
¹ 4—indicates that the statutory source for designation of this hazardous substance under CERCLA is RCRA section 3001.

EXTREMELY HAZARDOUS SUBSTANCES

ENVIRONMENTAL PROTECTION AGENCY REGULATIONS FOR EMERGENCY PLANNING AND NOTIFICATION UNDER CERCLA

(40 CFR 355; 52 FR 13395, April 22, 1987; Corrected by 52 FR 15321, 15412, April 28, 1987; Amended by 52 FR 48072, 48074, December 17, 1987; 53 FR 5575, February 25, 1988; 54 FR 22543, May 24, 1989; Corrected by 54 FR 38853, September 21, 1989; Amended by 54 FR 43165, October 20, 1989; 54 FR 53062, December 27, 1989; 55 FR 5546 February 15, 1990; 55 FR 30185, July 24, 1990; 55 FR 30644, July 28, 1990)

PART 355—EMERGENCY PLANNING AND NOTIFICATION

Authority: 42 U.S.C. 11002, 11004, and 11048.

[Amended by 52 FR 48072, 48074, December 17, 1987; 53 FR 5575, February 25, 1988; 54 FR 22543, May 24, 1989; 55 FR 5546, February 15, 1990; 55 FR 30185, July 24, 1990]

§ 355.10 Purpose.

This regulation establishes the list of extremely hazardous substances, threshold planning quantities, and facility notification responsibilities necessary for the development and implementation of State and local emergency response plans.

§ 355.20 Definitions.

Act means the Superfund Amendments and Reauthorization Act of 1986.

CERCLA means the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended. [Corrected by 54 FR 38853, September 21, 1989]

CERCLA Hazardous Substance means a substance on the list defined in section 101(14) of CERCLA.

NOTE: Listed CERCLA hazardous substances appear in Table 302.4 of 40 CFR Part 302.

Chief Executive Officer of the tribe means the person who is recognized by the Bureau of Indian Affairs as the chief elected administrative officer of the tribe.

[Added by 55 FR 30644, July 26, 1990]

Commission means the emergency response commission for the State in which the facility is located except where the facility is located in Indian Country, in which case, *commission* means the emergency response commission for the tribe under whose jurisdiction the facility is located. In absence of an emergency response commission, the Governor and the chief executive officer, respectively, shall be the commission. Where there is a cooperative agreement between a State and a Tribe, the commission shall be the entity identified in the agreement.

[Revised by 55 FR 30644, July 26, 1990]

Committee or Local emergency planning committee means the local emergency planning committee appointed by the emergency response commission.

[Added by 55 FR 30644, July 26, 1990]

Environment includes water, air, and land and the interrelationship which exists among and between water, air, and land and all living things.

Extremely hazardous substance means a substance listed in Appendices A and B of this part.

Facility means all buildings, equipment, structure, and other stationary items that are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with, such person). *Facility* shall include manmade structures in which chemicals are purposefully placed or removed through human means such that it functions as a containment structure for human use. For purposes of emergency release notification, the term includes motor vehicles, rolling stock, and aircraft.

[Revised by 55 FR 30644, July 26, 1990]

Hazardous chemical means any hazardous chemical as defined under § 1910.1200(c) of Title 29 of the Code of Federal Regulations, except that such term does not include the following substances:

(1) Any food, food additive, color additive, drug, or cosmetic regulated by the Food and Drug Administration.

(2) Any substance present as a solid in any manufactured item to the extent exposure to the substance does not occur under normal conditions of use.

(3) Any substance to the extent it is used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public.

(4) Any substance to the extent it is used in a research laboratory or a hospital or other medical facility under the direct supervision of a technically qualified individual.

(5) Any substance to the extent it is used in routine agricultural operations or is a fertilizer held for sale by a retailer to the ultimate customer.

Indian Country means *Indian country* as defined in 18 U.S.C. 1151. That section defines Indian country as:

(a) All land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation;

(b) All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a State; and

(c) All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

Indian tribe means those tribes federally recognized by the Secretary of the Interior.

[Added by 55 FR 30664, July 28, 199

[Sec. 355.20]

Mixture means a heterogenous association of substances where the various individual substances retain their identities and can usually be separated by mechanical means. Includes solutions or compounds but does not include alloys or amalgams.

Person means any individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or interstate body.

Release means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles) of any hazardous chemical, extremely hazardous substance, or CERCLA hazardous substance.

Reportable quantity means, for any CERCLA hazardous substance, the reportable quantity established in Table 302.4 of 40 CFR Part 302, for such substance, for any other substance, the reportable quantity is one pound.

State means any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, any other territory or possession over which the United States has jurisdictions and Indian Country.

[Added by 55 FR 30644, July 28, 1990]

Threshold planning quantity means, for a substance listed in Appendices A and B, the quantity listed in the column "threshold planning quantity" for that substance.

§ 355.30 Emergency planning.

(a) *Applicability.* The requirements of this section apply to any facility at which there is present an amount of any extremely hazardous substance equal to or in excess of its threshold planning quantity, or designated, after public notice and opportunity for comment, by the Commission or the Governor for the State in which the facility is located. For purposes of this section, an "amount of any extremely hazardous substance" means the total amount of an extremely hazardous substance present at any one time at a facility at concentrations greater than one percent by weight, regardless of location, number of containers, or method of storage.

(b) *Emergency planning notification.* The owner or operator of a facility subject to this section shall provide notification to the Commission that it is a facility subject to the emergency planning requirements of this Part. Such notification shall be provided: on or before May 17, 1987 or within sixty days after a facility first becomes subject to the requirements of this section, whichever is later.

(c) *Facility emergency coordinator.* The owner or operator of a facility subject to this section shall designate a facility representative who will participate in the local emergency planning process as a facility emergency response coordinator. The owner or operator shall notify the local emergency planning committee (or the Governor if there is no committee) of the facility representative on or before September 17, 1987 or 30 days after establishment of a local emergency planning committee, whichever is earlier.

(d) *Provision of information.* (1) The owner or operator of a facility subject to this section shall inform the local emergency planning committee of any changes occurring at the facility which may be relevant to emergency planning.

(2) Upon request of the local emergency planning committee, the owner or operator of a facility subject to this section shall promptly provide to the committee any information necessary for development or implementation of the local emergency plan.

(e) *Calculation of TPQs for solids and mixtures.* (1) If a container or storage vessel holds a mixture or solution of an extremely hazardous substance, then the concentration of extremely hazardous substance, in weight percent (greater than 1%), shall be multiplied by the mass (in pounds) in the vessel to determine the actual quantity of extremely hazardous substance therein.

(2)(i) Extremely hazardous substances that are solids are subject to either of two threshold planning quantities as shown on Appendices A and B (i.e., 500/10,000 pounds). The lower quantity applies only if the solid exists in powdered form and has a particle size less than 100 microns; or is handled in solution or in molten form; or meets the criteria for a National Fire Protection Association (NFPA) rating of 2, 3 or 4 for reactivity. If the solid does not meet any of these criteria, it is subject to the upper (10,000 pound) threshold planning quantity as shown in Appendices A and B.

(ii) The 100 micron level may be determined by multiplying the weight percent of solid with a particle size less than 100 microns in a particular container by the quantity of solid in the container.

(iii) The amount of solid in solution may be determined by multiplying the weight percent of solid in the solution in a particular container by the quantity of solution in the container.

(iv) The amount of solid in molten form must be multiplied by 0.3 to determine whether the lower threshold planning quantity is met.

(Approved by the Office of Management and Budget under control number 2050-0046)

§ 355.40 Emergency release notification.

(a) *Applicability.* (1) The requirements of this section apply to any facility: (i) at which a hazardous chemical is produced, used or stored and (ii) at which there is release of a reportable quantity of any extremely hazardous substance or CERCLA hazardous substance.

(2) This section does not apply to:

(i) Any release which results in exposure to persons solely within the boundaries of the facility;

(ii) Any release which is a "federally permitted release" as defined in section 101(10) of CERCLA;

(iii) Any release that is continuous and stable in quantity and rate under the definitions in 40 CFR 302.8(b). Exemption from notification under this subsection does not include exemption from:

(A) Initial notifications as defined in 40 CFR 302.8(d) and (e);

(B) Notification of a "statistically significant increase," defined in 40 CFR 302.8(b) as any increase above the upper bound of the reported normal range, which is to be submitted to the community emergency coordinator for the local emergency planning committee for any area likely to be affected by the release and to the State emergency response commission of any State likely to be affected by the release;

(C) Notification of a "new release" as defined in 40 CFR 302.8(g)(1); or

(D) Notification of a change in the normal range of the release as required under 40 CFR 302.8(g)(2).

[355.40(a)(2)(iii) revised by 55 FR 30185, July 24, 1990]

[355.40 (a)(2)(iv) amended and (v) and (vi) added by 54 FR 22543, May 24, 1989]

(iv) Any release of a pesticide product exempt from CERCLA section 103(a) reporting under section 103(e) of CERCLA;

(v) Any release not meeting the definition of release under Section 101(22) of CERCLA, and therefore exempt from Section 103(a) reporting; and

(vi) Any radionuclide release which

occurs (A) naturally in soil from land holdings such as parks, golf courses, or other large tracts of land; (B) naturally from the disturbance of land for purposes other than mining, such as for agricultural or construction activities; (C) from the dumping of coal and coal ash at utility and industrial facilities with coal-fired boilers; and (D) from coal and coal ash piles at utility and industrial facilities with coal-fired boilers.

Note to paragraph (a): Releases of CERCLA hazardous substances are subject to the release reporting requirements of CERCLA section 103, codified at 40 CFR Part 302, in addition to the requirements of this part.

(b) *Notice requirements.* (1) The owner or operator of a facility subject to this section shall immediately notify the community emergency coordinator for the local emergency planning committee of any area likely to be affected by the release and the State emergency response commission of any State likely to be affected by the release. If there is no local emergency planning committee, notification shall be provided under this section to relevant local emergency response personnel.

(2) The notice required under this section shall include the following to the extent known at the time of notice and so long as no delay in notice or emergency response results:

(i) The chemical name or identity of any substance involved in the release.

(ii) An indication of whether the substance is an extremely hazardous substance.

(iii) An estimate of the quantity of any such substance that was released into the environment.

(iv) The time and duration of the release.

(v) The medium or media into which the release occurred.

(vi) Any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals.

(vii) Proper precautions to take as a result of the release, including evacuation (unless such information is readily available to the community emergency coordination pursuant to the emergency plan).

(viii) The names and telephone number of the person or persons to be contacted for further information.

(3) As soon as practicable after a release which requires notice under (b)(1) of this section, such owner or operator shall provide a written follow-up emergency notice (or notices, as more information becomes available) setting forth and updating the information required under paragraph (b)(2) of this section, and including additional information with respect to:

(i) Actions taken to respond to and contain the release.

(ii) Any known or anticipated acute or chronic health risks associated with the release, and,

(iii) Where appropriate, advice regarding medical attention necessary for exposed individuals.

(4) *Exceptions.* (i) Until April 30, 1988, in lieu of the notice specified in paragraph (b)(2) of this section, any owner or operator of a facility subject to this section from which there is a release of a CERCLA hazardous substance which is not an extremely hazardous substance and has a statutory reportable quantity may provide the same notice required under CERCLA section 103(a) to the local emergency planning committee.

(ii) An owner or operator of a facility from which there is a transportation-related release may meet the requirements of this section by providing the information indicated in paragraph (b)(2) to the 911 operator, or in the absence of a 911 emergency telephone number, to the operator. For purposes of this paragraph, a "transportation-related release" means a release during transportation, or storage incident to transportation if the stored substance is moving under active shipping papers and has not reached the ultimate consignee.

(Approved by the Office of Management and Budget under control number 2050-0046)

§ 355.50 Penalties.

(a) *Civil penalties.* Any person who fails to comply with the requirements of § 355.40 shall be subject to civil penalties of up to $25,000 for each violation in accordance with section 325(b)(1) of the Act.

(b) *Civil penalties for continuing violations.* Any person who fails to comply with the requirements of § 355.40 shall be subject to civil penalties of up to $25,000 for each day during which the violation continues, in accordance with section 325(b)(2) of the Act. In the case of a second or subsequent violation, any such person may be subject to civil penalties of up to $75,000 for each day the violation continues, in accordance with section 325(b)(2) of the Act.

(c) *Criminal penalties.* Any person who knowingly and willfully fails to provide notice in accordance with § 355.40 shall, upon conviction, be fined not more than $25,000 or imprisoned for not more than two (2) years, or both (or, in the case of a second or subsequent conviction, shall be fined not more than $50,000 or imprisoned for not more than five (5) years, or both) in accordance with section 325(b)(4) of the Act.

APPENDIX A.—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES

[Corrected by 52 FR 15321, 15412, April 28, 1987; amended by 52 FR 48072, 48074, December 17, 1987; 53 FR 5575, February 25, 1988; 54 FR 43165, October 20, 1989; 54 FR 53062, December 27, 1989; 55 FR 5546, February 15, 1990]

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
75-86-5	Acetone Cyanohydrin		10	1,000
1752-30-3	Acetone Thiosemicarbazide	e	1	1,000/10,000
107-02-8	Acrolein		1	500
79-06-1	Acrylamide	d, l	5,000	1,000/10,000
107-13-1	Acrylonitrile	d, l	100	10,000
814-68-6	Acrylyl Chloride	e, h	1	100
111-69-3	Adiponitrile	e, l	1	1,000
116-06-3	Aldicarb	c	1	100/10,000
309-00-2	Aldrin	d	1	500/10,000
107-18-6	Allyl Alcohol		100	1,000
107-11-9	Allylamine	e	1	500
20859-73-8	Aluminum Phosphide	b	100	500
54-62-6	Aminopterin	e	1	500/10,000

APPENDIX A—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
78-53-5	Amiton	e	1	500
3734-97-2	Amiton Oxalate	e	1	100/10,000
7664-41-7	Ammonia	l	100	500
300-62-9	Amphetamine	e	1	1,000
62-53-3	Aniline	d, l	5,000	1,000
88-05-1	Aniline, 2,4,6-Trimethyl-	e	1	500
7783-70-2	Antimony Pentafluoride	e	1	500
1397-94-0	Antimycin A	c, e	1	1,000/10,000
86-88-4	ANTU		100	500/10,000
1303-28-2	Arsenic Pentoxide	d	1	100/10,000
1327-53-3	Arsenous Oxide	d, h	1	100/10,000
7784-34-1	Arsenous Trichloride	d	1	500
7784-42-1	Arsine	e	1	100
2642-71-9	Azinphos-Ethyl	e	1	100/10,000
86-50-0	Azinphos-Methyl		1	10/10,000
98-87-3	Benzal Chloride	d	5,000	500
98-16-8	Benzenamine, 3-(Trifluoromethyl)-	e	1	500
100-14-1	Benzene, 1-(Chloromethyl)-4-Nitro-	e	1	500/10,000
98-05-5	Benzenearsonic Acid	e	1	10/10,000
3615-21-2	Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)-	e, g	1	500/10,000
98-07-7	Benzotrichloride	d	10	500
100-44-7	Benzyl Chloride	d	100	500
140-29-4	Benzyl Cyanide	e, h	1	500
15271-41-7	Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-((((Methylamino)Carbonyl)Oxy)Imino)-, (1s-(1-alpha, 2-beta, 4-alpha, 5-alpha, 6E))-.	e	1	500/10,000
534-07-6	Bis(Chloromethyl) Ketone	e	1	10/10,000
4044-65-9	Bitoscanate	e	1	500/10,000
10294-34-5	Boron Trichloride	e	1	500
7637-07-2	Boron Trifluoride	e	1	500
353-42-4	Boron Trifluoride Compound With Methyl Ether (1:1)	e	1	1,000
28772-56-7	Bromadiolone	e	1	100/10,000
7726-95-6	Bromine	e, l	1	500
1306-19-0	Cadmium Oxide	e	1	100/10,000
2223-93-0	Cadmium Stearate	c, e	1	1,000/10,000
7778-44-1	Calcium Arsenate	d	1	500/10,000
8001-35-2	Camphechlor	d	1	500/10,000
56-25-7	Cantharidin	e	1	100/10,000
51-83-2	Carbachol Chloride	e	1	500/10,000
26419-73-8	Carbamic Acid, Methyl-, 0-(((2,4-Dimethyl-1, 3-Dithiolan-2-yl)Methylene)Amino)-	e	1	100/10,000
1563-66-2	Carbofuran		10	10/10,000
75-15-0	Carbon Disulfide	l	100	10,000
786-19-6	Carbophenothion	e	1	500
57-74-9	Chlordane	d	1	1,000
470-90-6	Chlorfenvinfos	e	1	500
7782-50-5	Chlorine		10	100
24934-91-6	Chlormephos	e	1	500
999-81-5	Chlormequat Chloride	e, h	1	100/10,000
79-11-8	Chloroacetic Acid	e	1	100/10,000
107-07-3	Chloroethanol	e	1	500
627-11-2	Chloroethyl Chloroformate	e	1	1,000
67-66-3	Chloroform	d, 1	10	10,000
542-88-1	Chloromethyl ether	d, h	10	100
107-30-2	Choromethyl methyl ether	e, d	10	100
3691-35-8	Chlorophacinone	e	1	100/10,000
1982-47-4	Chloroxuron	e	1	500/10,000
21923-23-9	Chlorthiophos	e, h	1	500
10025-73-7	Chromic Chloride	e	1	1/10,000
62207-76-5	Cobalt, ((2,2'-(1,2-Ethanediylbis (Nitrilomethylidyne))Bis(6-Fluoro-phenolato))(2-)-N,N',O,O')-,	e	1	100/10,000
10210-68-1	Cobalt Carbonyl	e, h	1	10/10,000
64-86-8	Colchicine	e, h	1	10/10,000
56-72-4	Coumaphos		10	100/10,000
5836-29-3	Coumatetralyl	e	1	500/10,000
95-48-7	Cresol, o-	d	1,000	1,000/10,000
535-89-7	Crimidine	e	1	100/10,000
4170-30-3	Crotonaldehyde		100	1,000
123-73-9	Crotonaldehyde, (E)-		100	1,000
506-68-3	Cyanogen Bromide		1,000	500/10,000
506-78-5	Cyanogen Iodide	e	1	1,000/10,000
2636-26-2	Cyanophos	e	1	1,000
675-14-9	Cyanuric Fluoride	e	1	100
66-81-9	Cycloheximide	e	1	100/10,000
108-91-8	Cyclohexylamine	e, l	1	10,000
17702-41-9	Decaborane(14)	e	1	500/10,000
8065-48-3	Demeton	e	1	500
919-86-8	Demeton-S-Methyl	e	1	500
10311-84-9	Dialifor	e	1	100/10,000
19287-45-7	Diborane	e	1	100
111-44-4	Dichloroethyl ether	d	10	10,000
149-74-6	Dichloromethylphenylsilane	e	1	1,000
62-73-7	Dichlorvos		10	1,000

[Appendix A]

APPENDIX A—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
141-66-2	Dicrotophos	e	1	100
1464-53-5	Diepoxybutane	d	10	500
814-49-3	Diethyl Chlorophosphate	e, h	1	500
1642-54-2	Diethylcarbamazine Citrate	e	1	100/10,000
71-63-6	Digitoxin	c, e	1	100/10,000
2238-07-5	Diglycidyl Ether	e	1	1,000
20830-75-5	Digoxin	e, h	1	10/10,000
115-26-4	Dimefox	e	1	500
60-51-5	Dimethoate		10	500/10,000
2524-03-0	Dimethyl Phosphorochloridothioate	e	1	500
77-78-1	Dimethyl sulfate	d	100	500
	Dimethyl Sulfide [Removed by 55 FR 5546, Feb. 15, 1990]			
75-78-5	Dimethyldichlorosilane	e, h	1	500
57-14-7	Dimethylhydrazine	d	10	1,000
99-98-9	Dimethyl-p-Phenylenediamine	e	1	10/10,000
644-64-4	Dimetilan	e	1	50/10,000
534-52-1	Dinitrocresol		10	10/10,000
88-85-7	Dinoseb		1,000	100/10,000
1420-07-1	Dinoterb	e	1	500/10,000
78-34-2	Dioxathion	e	1	500
82-66-6	Diphacinone	e	1	10/10,000
152-16-9	Diphosphoramide, Octamethyl-		100	100
298-04-4	Disulfoton		1	500
514-73-8	Dithiazanine Iodide	e	1	500/10,000
541-53-7	Dithiobiuret		100	100/10,000
316-42-7	Emetine, Dihydrochloride	e, h	1	1/10,000
115-29-7	Endosulfan		1	10/10,000
2778-04-3	Endothion	e	1	500/10,000
72-20-8	Endrin		1	500/10,000
72-20-8	Endrin	1	500/10,000	
106-89-8	Epichlorohydrin	d, l	100	1,000
2104-64-5	EPN	e	1	100/10,000
50-14-6	Ergocalciferol	c, e	1	1,000/10,000
379-79-3	Ergotamine Tartrate	e	1	500/10,000
1622-32-8	Ethanesulfonyl Chloride, 2-Chloro-	e	1	500
10140-87-1	Ethanol, 1,2-Dichloro-, Acetate	e	1	1,000
563-12-2	Ethion		10	1,000
13194-48-4	Ethoprophos	e	1	1,000
538-07-8	Ethylbis(2-Chloroethyl) Amine	e, h	1	500
371-62-0	Ethylene Fluorohydrin	c, e, h	1	10
75-21-8	Ethylene oxide	d, l	10	1,000
107-15-3	Ethylenediamine		5,000	10,000
151-56-4	Ethyleneimine	d	1	500
542-90-5	Ethylthiocyanate	e	1	10,000
2224-92-6	Fenamiphos	e	1	10/10,000
122-14-5	Fenitrothion	e	1	500
115-90-2	Fensulfothion	e, h	1	500
4301-50-2	Fluenetil	e	1	100/10,000
7782-41-4	Fluorine	k	10	500
640-19-7	Fluoroacetamide	j	100	100/10,000
144-49-0	Fluoroacetic Acid	e	1	10/10,000
359-06-8	Fluoroacetyl Chloride	c, e	1	10
51-21-8	Fluorouracil	e	1	500/10,000
944-22-9	Fonofos	e	1	500
50-00-0	Formaldehyde	d, l	100	500
107-16-4	Formaldehyde Cyanohydrin	e, h	1	1,000
23422-563-9	Formetanate Hydrochloride	e, h	1	500/10,000
2540-82-1	Formothion	e	1	100
17702-57-7	Formparanate	e	1	100/10,000
21548-32-3	Fosthietan	e	1	500
3878-19-1	Fuberidazole	e	1	100/10,000
110-00-9	Furan		100	500
13450-90-3	Gallium Trichloride	e	1	500/10,000
77-47-4	Hexachlorocyclopentadiene	d, h	10	100
4835-11-4	Hexamethylenediamine, N,N'-Dibutyl-	e	1	500
302-01-2	Hydrazine	d	1	1,000
7647-01-0	Hydrogen chloride (Gas Only)	e, l	5,000	500
7664-39-3	Hydrogen Fluoride		100	100

[Appendix A]

Appendix A—The List of Extremely Hazardous Substances and Their Threshold Planning Quantities—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
7722-84-1	Hydrogen Peroxide (Conc >52%)	e, l	1	1,000
7783-07-5	Hydrogen Selenide	e	1	10
7783-06-4	Hydrogen Sulfide	l	100	500
123-31-9	Hydroquinone	l	1	500/10,000
13463-40-6	Iron, Pentacarbonyl-	e	1	100
297-78-9	Isobenzan	e	1	100/10,000
78-82-0	Isobutyronitrile	e, h	1	1,000
102-36-3	Isocyanic Acid, 3,4-Dichlorophenyl Ester	e	1	500/10,000
465-73-6	Isodrin		1	100/10,000
55-91-4	Isofluorphate	c	100	100
4098-71-9	Isophorone Diisocyanate	b, e	1	100
108-23-6	Isopropyl Chloroformate	e	1	1,000
	Isopropyl Formate			
	[Removed by 55 FR 5546, February 15, 1990]			
119-38-0	Isoproplymethylpyrazolyl Dimethylcarbamate	e	1	500
78-97-7	Lactonitrile	e	1	1,000
21609-90-5	Leptophos	e	1	500/10,000
541-25-3	Lewisite	c, e, h	1	10
58-89-9	Lindane	d	1	1,000/10,000
7580-67-8	Lithium Hydride	b, e	1	100
109-77-3	Malononitrile		1,000	500/10,000
12108-13-3	Manganese, Tricarbonyl Methylcyclopentadienyl	e, h	1	100
51-75-2	Mechlorethamine	c, e	1	10
950-10-7	Mephosfolan	e	1	500
1600-27-7	Mercuric Acetate	e	1	500/10,000
7487-94-7	Mercuric Chloride	e	1	500/10,000
21908-53-2	Mercuric Oxide	e	1	500/10,000
10476-95-6	Methacrolein Diacetate	e	1	1,000
760-93-0	Methacrylic Anhydride	e	1	500
126-98-7	Methacrylonitrile	h	1,000	500
920-46-7	Methacryloyl Chloride	e	1	100
30674-80-7	Methacryloyloxyethyl Isocyanate	e, h	1	100
10265-92-6	Methamidophos	e	1	100/10,000
558-25-8	Methanesulfonyl Fluoride	e	1	1,000
950-37-8	Methidathion	e	1	500/10,000
2032-65-7	Methiocarb		10	500/10,000
16752-77-5	Methomyl	h	100	500/10,000
151-38-2	Methoxyethylmercuric Acetate	e	1	500/10,000
80-63-7	Methyl 2-Chloroacrylate	e	1	500
74-83-9	Methyl Bromide	l	1,000	1,000
79-22-1	Methyl Chloroformate	d, h	1,000	500
	Methyl Disulfide			
	[Removed by 55 FR 5546, February 15, 1990]			
60-34-4	Methyl Hydrazine		10	500
624-83-9	Methyl Isocyanate	f	1	500
556-61-6	Methyl Isothiocyanate	b, e	1	500
74-93-1	Methyl Mercaptan	l	100	500
3735-23-7	Methyl Phenkapton	e	1	500
676-97-1	Methyl Phosphonic Dichloride	b, e	1	100
556-64-9	Methyl Thiocyanate	e	1	10,000
78-94-4	Methyl Vinyl Ketone	e	1	10
502-39-6	Methylmercuric Dicyanamide	e	1	500/10,000
75-79-6	Methyltrichlorosilane		1	500/10,000
1129-41-5	Metolcarb	e	1	100/10,000
7786-34-7	Mevinphos		10	500
315-18-4	Mexacarbate		1,000	500/10,000
50-07-7	Mitomycin C	d	10	500/10,000
6923-22-4	Monocrotophos	e	1	10/10,000
2763-96-4	Muscimol		1,000	500/10,000
505-60-2	Mustard Gas	e, h	1	500
13463-39-3	Nickel carbonyl	d	10	1
54-11-5	Nicotine	c	100	100
65-30-5	Nicotine sulfate	e	100	100/10,000
7697-37-2	Nitric Acid		1,000	1,000
10102-43-9	Nitric Oxide	c	10	100
98-95-3	Nitrobenzene		1,000	10,000
1122-60-7	Nitrocyclohexane	e	1	500

[Appendix A]

Appendix A—The List of Extremely Hazardous Substances and Their Threshold Planning Quantities—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
10102-44-0	Nitrogen Dioxide		10	100
62-75-9	Nitrosodimethylamine	d, h	10	1,000
991-42-4	Norbormide	e	1	100/10,000
0	Organorhodium Complex (PMN-82-147)	e	1	10/10,000
630-60-4	Ouabain	c, e	1	100/10,000
23135-22-0	Oxamyl	e	1	100/10,000
78-71-7	Oxetane, 3,3-Bis(Chloromethyl)-	1	e	500
2497-07-6	Oxydisulfoton	e, h	1	500
10028-15-6	Ozone	e	1	100
1910-42-5	Paraquat	e	1	10/10,000
2074-50-2	Paraquat Methosulfate	e	1	10/10 000
56-38-2	Parathion	c, d	10	100
298-00-0	Parathion-Methyl	c	100	100/10,000
12002-03-8	Paris Green	d	1	500/10,000
19624-22-7	Pentaborane	e	1	500
2570-26-5	Pentadecylamine	e	1	100/10,000
79-21-0	Peracetic Acid	e	1	500
594-42-3	Perchloromethylmercaptan		100	500
108-95-2	Phenol		1,000	500/10,000
	Phenol, 2,2'-Thiobis(4,6-Dichloro- [Removed by 55 FR 5546, February 15, 1990]			
4418-66-0	Phenol, 2,2'-Thiobis(4-Chloro-6-Methyl)-	e	1	100/10,000
64-00-6	Phenol, 3-(1-Methylethyl)-, Methylcarbamate	e	1	500/10,000
58-36-6	Phenoxarsine, 10,10'-Oxydi-	e	1	500/10,000
696-28-6	Phenyl Dichloroarsine	d, h	1	500
59-88-1	Phenylhydrazine Hydrochloride	e	1	1,000/10,000
62-38-4	Phenylmercury Acetate		100	500/10,000
2097-19-0	Phenylsilatrane	e, h	1	100/10,000
103-85-5	Phenylthiourea		108	100/10,000
298-02-2	Phorate		10	10
4104-14-7	Phosacetim	e	1	100/10,000
947-02-4	Phosfolan	e	1	100/10,000
75-44-5	Phosgene	l	10	10
732-11-6	Phosmet	e	1	10/10,000
13171-21-6	Phosphamidon	e	1	100
7803-51-2	Phosphine		100	500
2703-13-1	Phosphonothioic Acid, Methyl-, O-Ethyl O-(4-(Methylthio)Phenyl) Ester	e	1	500
50782-69-9	Phosphonothioic Acid, Methyl-, S-(2-(Bis(1-Methylethyl)Amino)Ethyl O-Ethyl Ester	e	1	100
2665-30-7	Phosphonothioic Acid, Methyl-, O-(4-Nitrophenyl) O-Phenyl Ester	e	1	500
3254-63-5	Phosphonic Acid, Dimethyl 4-(Methylthio) Phenyl Ester	e	1	500
2587-90-8	Phosphorothioic Acid, O,O-Dimethyl-S-(2-Methylthio) Ethyl Ester	c, e, g	1	500
7723-14-0	Phosphorus	b, h	1	100
10025-87-3	Phosphorus Oxychloride	d	1,000	500
10026-13-8	Phosphorus Pentachloride	b, e	1	500
1314-56-3	Phosphorus Pentoxide	b, e	1	10
7719-12-2	Phosphorus Trichloride		1,000	1,000
57-47-6	Physostigmine	e	1	100/10,000
57-64-7	Physostigmine, Salicylate (1:1)	e	1	100/10,000
124-87-8	Picrotoxin	e	1	500/10,000
110-89-4	Piperidine	e	1	1,000
	Piprotal [Removed by 55 FR 5546, February 15, 1990]			
23505-41-1	Pirimifos-Ethyl	e	1	1,000
10124-50-2	Potassium arsenite	d	1	500/10,000
151-50-8	Potassium Cyanide	b	10	100
506-61-6	Potassium Silver Cyanide	b	1	500
2631-37-0	Promecarb	e, h	1	500/10,000
106-96-7	Propargyl Bromide	e	1	10
57-57-8	Propiolactone, Beta-	e	1	500
107-12-0	Propionitrile		10	500
542-76-7	Propionitrile, 3-Chloro-		1,000	1,000
70-69-9	Propiophenone, 4-Amino-	e, g	1	100/10,000
109-61-5	Propyl Chloroformate	e	1	500
75-56-9	Propylene Oxide	l	100	10,000
75-55-8	Propyleneimine	d	1	10,000
2275-18-5	Prothoate	e	1	100/10,000
129-00-0	Pyrene	c	5,000	1,000/10,000
140-76-1	Pyridine, 2-Methyl-5-Vinyl-	e	1	500
504-24-5	Pyridine, 4-Amino-	h	1,000	500/10,000
1124-33-0	Pyridine, 4-Nitro-, 1-Oxide	e	1	500/10,000
53558-25-1	Pyriminil	e, h	1	100/10,000
14167-18-1	Salcomine	e	1	500/10,000

[Appendix A]

Appendix A—The List of Extremely Hazardous Substances and Their Threshold Planning Quantities—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
107-44-8	Sarin	e, h	1	10
7783-00-8	Selenious Acid		10	1,000/10,000
7791-23-3	Selenium Oxychloride	e	1	500
563-41-7	Semicarbazide Hydrochloride	e	1	1,000/10,000
3037-72-7	Silane, (4-Aminobutyl)Diethoxymethyl-	e	1	1,000
7631-89-2	Sodium Arsenate	d	[illegible]00	1,000/10,000
7784-46-5	Sodium arsenite	d	1	500/10,000
26628-22-8	Sodium Azide (Na(N3))	b	1,000	500
124-65-2	Sodium Cacodylate	e	1	100/10,000
143-33-9	Sodium Cyanide (Na(CN))	b	10	100
62-74-8	Sodium Fluoroacetate		10	10/10,000
	Sodium Pentachlorophenate			

[Removed by 55 FR 5546, February 15, 1990]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
13410-01-0	Sodium Selenate	e	1	100/10,000
10102-18-8	Sodium Selenite	h	100	100/10,000
10102-20-2	Sodium Tellurite	e	1	500/10,000
900-95-8	Stannane, Acetoxytriphenyl-	e, g	1	500/10,000
57-24-9	Strychnine	c	10	100/10,000
60-41-3	Strychnine sulfate	e	10	100/10,000
3689-24-5	Sulfotep		100	500
3569-57-1	Sulfoxide, 3-Chloropropyl Octyl	e	1	500
7446-09-5	Sulfur Dioxide	e, l	1	500
7783-60-0	Sulfur Tetrafluoride	e	1	100
7446-11-9	Sulfur Trioxide	b, e	1	100
7664-93-9	Sulfuric Acid		1,000	1,000
77-81-6	Tabun	c, e, h	1	10
13494-80-9	Tellurium	e	1	500/10,000
7783-80-4	Tellurium Hexafluoride	e, k	1	100
107-49-3	TEPP		10	100
13071-79-9	Terbufos	e, h	1	100
78-00-2	Tetraethyllead	c, d	10	100
597-64-8	Tetraethyltin	c, e	1	100
75-74-1	Tetramethyllead	c, e, l	1	100
509-14-8	Tetranitromethane		10	500
10031-59-1	Thallium Sulfate	h	100	100/10,000
6533-73-9	Thallous Carbonate	c, h	100	100/10,000
7791-12-0	Thallous Chloride	c, h	100	100/10,000
2757-18-8	Thallous Malonate	c, e, h	1	100/10,000
7446-18-6	Thallous Sulfate		100	100/10,000
2231-57-4	Thiocarbazide	e	1	1,000/10,000
39196-18-4	Thiofanox		100	100/10,000
297-97-2	Thionazin		100	500
108-98-5	Thiophenol		100	500
79-19-6	Thiosemicarbazide		100	100/10,000
5344-82-1	Thiourea, (2-Chlorophenyl)-		100	100/10,000
614-78-8	Thiourea, (2-Methylphenyl)-	e	1	500/10,000
7550-45-0	Titanium Tetrachloride	e	1	100
584-84-9	Toluene 2,4-Diisocyanate		100	500
91-08-7	Toluene 2,6-Diisocyanate		100	100
110-57-6	Trans-1,4-Dichlorobutene	e	1	500
1031-47-6	Triamiphos	e	1	500/10,000
24017-47-8	Triazofos	e	1	500
76-02-8	Trichloroacetyl Chloride	e	1	500
115-21-9	Trichloroethylsilane	e, h	1	500
327-98-0	Trichloronate	e, k	1	500
98-13-5	Trichlorophenylsilane	e, h	1	500
1558-25-4	Trichloro(Chloromethyl)Silane	e	1	100
27137-85-5	Trichloro(Dichlorophenyl)Silane	e	1	500
998-30-1	Triethoxysilane	e	1	500
75-77-4	Trimethylchlorosilane	e	1	1,000
824-11-3	Trimethylolpropane Phosphite	e, h	1	100/10,000
1066-45-1	Trimethyltin Chloride	e	1	500/10,000
639-58-7	Triphenyltin Chloride	e	1	500/10,000
555-77-1	Tris(2-Chloroethyl)Amine	e, h	1	100
2001-95-8	Valinomycin	c, e	1	1,000/10,000
1314-62-1	Vanadium Pentoxide		1,000	100/10,000
108-05-4	Vinyl Acetate Monomer	d, l	5,000	1,000
81-81-2	Warfarin		100	500/10,000
129-06-6	Warfarin sodium	e, h	100	100/10,000

[Appendix A]

APPENDIX B—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[CAS Number Order]

75-15-0	Carbon Disulfide	l	100	10,000
75-18-3				

[Removed by 55 FR 5546, February 15, 1990]

75-21-8	Ethylene oxide	d, l	10	1,000
75-44-5	Phosgene	l	10	10
75-55-8	Propyleneimine	d	1	10,000
75-56-9	Propylene Oxide	l	100	10,000
75-74-1	Tetramethyllead	c, e, l	1	100
75-77-4	Trimethylchlorosilane	e	1	1,000
75-78-5	Dimethyldichlorosilane	e, h	1	500
75-79-6	Methyltrichlorosilane	e, h	1	500
75-86-5	Acetone Cyanohydrin		10	1,000
76-02-8	Trichloroacetyl Chloride	e	1	500
77-47-4	Hexachlorocyclopentadiene	d, h	10	100
77-78-1	Dimethyl sulfate	d	100	500
77-81-6	Tabun	c, e, h	1	10
78-00-2	Tetraethyllead	c, d	10	100
78-34-2	Dioxathion	e	1	500
78-53-5	Amiton	e	1	500
78-71-7	Oxetane, 3,3-Bis(Chloromethyl)-	e	1	500
78-82-0	Isobutyronitrile	e, h	1	1,000
78-94-4	Methyl Vinyl Ketone	e	1	10
78-97-7	Lactonitrile	e	1	1,000
79-06-1	Acrylamide	d, l	5,000	1,000/10,000
79-11-8	Chloroacetic Acid	e	1	100/10,000
79-19-6	Thiosemicarbazide		100	100/10,000
79-21-0	Peracetic Acid	e	1	500
79-22-1	Methyl Chloroformate	d, h	1,000	500
80-63-7	Methyl 2-Chloroacrylate	e	1	500
81-81-2	Warfarin		100	500/10,000
82-66-6	Diphacinone	e	1	10/10,000
86-50-0	Azinphos-Methyl		1	10/10,000
86-88-4	ANTU		100	500/10,000
88-05-1	Aniline, 2,4,6-Trimethyl-	e	1	500
88-85-7	Dinoseb		1,000	100/10,000
91-08-7	Toluene 2,6-Diisocyanate		100	100
95-48-7	Cresol, o-	d	1,000	1,000/10,000
97-18-7				

[Removed by 55 FR 5546, February 15, 1990]

98-05-5	Benzenearsonic Acid	e	1	10/10,000
98-07-7	Benzotrichloride	d	10	500
98-13-5	Trichlorophenylsilane	e, h	1	500
98-16-8	Benzenamine, 3-(Trifluoromethyl)-	e	1	500
98-87-3	Benzal Chloride	d	5,000	500
98-95-3	Nitrobenzene	l	1,000	10,000
99-98-9	Dimethyl-p-Phenylenediamine	e	1	10/10,000
100-14-1	Benzene, 1-(Chloromethyl)-4-Nitro-	e	1	500/10,000
100-44-7	Benzyl Chloride	d	100	500
102-36-3	Isocyanic Acid, 3,4-Dichlorophenyl Ester	e	1	500/10,000
103-85-5	Phenylthiourea		100	100/10,000
106-89-8	Epichlorohydrin	d, l	100	1,000
106-96-7	Propargyl Bromide	e	1	10
107-02-8	Acrolein		1	500
107-07-3	Chloroethanol	e	1	500
107-11-9	Allylamine	e	1	500
107-12-0	Propionitrile		10	500
107-13-1	Acrylonitrile	d, l	100	10,000
107-15-3	Ethylenediamine		5,000	10,000
107-16-4	Formaldehyde Cyanohydrin	e, h	1	1,000
107-18-6	Allyl Alcohol		100	1,000
107-30-2	Chloromethyl methyl ether	c, d	10	100
107-44-8	Sarin	e, h	1	10
107-49-3	TEPP		10	100
108-05-4	Vinyl Acetate Monomer	d, l	5,000	1,000
108-23-6	Isopropyl Chloroformate	e	1	1,000
108-91-8	Cyclohexylamine	e, l	1	10,000
108-95-2	Phenol		1,000	500/10,000
108-98-5	Thiophenol		100	500
109-61-5	Propyl Chloroformate	e	1	500
109-77-3	Malononitrile		1,000	500/10,000
110-00-9	Furan		100	500
110-57-6	Trans-1,4-Dichlorobutene	e	1	500
110-89-4	Piperidine	e	1	1,000
111-44-4	Dichloroethyl ether	d	10	10,000
111-69-3	Adiponitrile	e, l	1	1,000
115-21-9	Trichloroethylsilane	e, h	1	500
115-26-4	Dimefox	e	1	500
115-29-7	Endosulfan		1	10/10,000
115-90-2	Fensulfothion	e, h	1	500

[Appendix B]

APPENDIX A—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
28347-13-9	Xylylene Dichloride	e	1	100/10,000
58270-08-9	Zinc, Dichloro(4,4-Dimethyl-5((((Methylamino) Carbonyl)Oxy)Imino)Pentanenitrile)-,(T-4)-	e	1	100/10,000
1314-84-7	Zinc Phosphide	b	100	500

*Only the statutory or final RQ is shown. For more information, see 40 CFR Table 302.4

Notes:

a This chemical does not meet acute toxicity criteria. Its TPQ is set at 10,000 pounds.

b This material is a reactive solid. The TPQ does not default to 10,000 pounds for non-powder, non-molten, non-solution form.

c The calculated TPQ changed after technical review as described in the technical support document.

d Indicates that the RQ is subject to change when the assessment of potential carcinogenicity and/or other toxicity is completed.

e Statutory reportable quantity for purposes of notification under SARA sect 304(a)(2).

f The statutory 1 pound reportable quantity for methyl isocyanate may be adjusted in a future rulemaking action.

g New chemicals added that were not part of the original list of 402 substances.

h Revised TPQ based on new or re-evaluated toxicity data.

j TPQ is revised to its calculated value and does not change due to technical review as in proposed rule.

k The TPQ was revised after proposal due to calculation error.

l Chemicals on the original list that do not meet toxicity criteria but because of their high production volume and recognized toxicity are considered chemicals of concern ("Other chemicals").

APPENDIX B.—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES

[Corrected by 52 FR 15412, April 28, 1987; amended by 52 FR 48072, 48074, December 17, 1987; 53 FR 5575, February 25, 1988; 54 FR 43165, October 12, 1989; 54 FR 53062, December 27, 1989; 55 FR 5546, February 15, 1990]

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
0	Organorhodium Complex (PMN-82-147)	e	1	10/10,000
50-00-0	Formaldehyde	d, l	100	500
50-07-7	Mitomycin C	d	10	500/10,000
50-14-6	Ergocalciferol	c, e	1	1,000/10,000
51-21-8	Fluorouracil	e	1	500/10,000
51-75-2	Mechlorethamine	c, e	1	10
51-83-2	Carbachol Chloride	e	1	500/10,000
54-11-5	Nicotine	c	100	100
54-62-6	Aminopterin	e	1	500/10,000
55-91-4	Isofluorphate	c	100	100
56-25-7	Cantharidin	e	1	100/10,000
56-38-2	Parathion	c, d	10	100
56-72-4	Coumaphos		10	100/10,000
57-14-7	Dimethylhydrazine	d	10	1,000
57-24-9	Strychnine	c	10	100/10,000
57-47-6	Physostigmine	e	1	100/10,000
57-57-8	Propiolactone, Beta-	e	1	500
57-64-7	Physostigmine, Salicylate (1:1)	e	1	100/10,000
57-74-9	Chlordane	d	1	1,000
58-36-6	Phenoxarsine, 10,10'-Oxydi-	e	1	500/10,000
58-89-9	Lindane	d	1	1,000/10,000
59-88-1	Phenylhydrazine Hydrochloride	e	1	1,000/10,000
60-34-4	Methyl Hydrazine		10	500
60-41-3	Strychnine sulfate	e	10	100/10,000
60-51-5	Dimethoate		10	500/10,000
62-38-4	Phenylmercury Acetate		100	500/10,000
62-53-3	Aniline	d, l	5,000	1,000
62-73-7	Dichlorvos		10	1,000
62-74-8	Sodium Fluoroacetate		10	10/10,000
62-75-9	Nitrosodimethylamine	d, h	10	1,000
64-00-6	Phenol, 3-(1-Methylethyl)-, Methylcarbamate	e	1	500/10,000
64-86-8	Colchicine	e, h	1	10/10,000
65-30-5	Nicotine sulfate	e	100	100/10,000
66-81-9	Cycloheximide	e	1	100/10,000
67-66-3	Chloroform	d, l	10	10,000
70-69-9	Propiophenone, 4-Amino-	e, g	1	100/10,000
71-63-6	Digitoxin	c, e	1	100/10,000
72-20-8	Endrin		1	500/10,000
74-83-9	Methyl bromide	l	1,000	1,000
74-90-8	Hydrocyanic Acid		10	100
74-93-1	Methyl Mercaptan	l	100	500

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APPENDIX B—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
116-06-3	Aldicarb	c	1	100/10,000
119-38-0	Isopropylmethylpyrazolyl Dimethylcarbamate	e	1	500
122-14-5	Fenitrothion	e	1	500
123-31-9	Hydroquinone	l	1	500/10,000
123-73-9	Crotonaldehyde, (E)-		100	1,000
124-65-2	Sodium Cacodylate	e	1	100/10,000
124-87-8	Picrotoxin	e	1	500/10,000
126-98-7	Methacrylonitrile	h	1,000	500
129-00-0	Pyrene	c	5,000	1,000/10,000
129-06-6	Warfarin sodium	e, h	100	100/10,000
131-52-2	[Removed by 55 FR 5546, February 15, 1990]			
140-29-4	Benzyl Cyanide	e, h	1	500
140-76-1	Pyridine, 2-Methyl-5-Vinyl-	e	1	500
141-66-2	Dicrotophos	e	1	100
143-33-9	Sodium Cyanide (Na(CN))	b	10	100
144-49-0	Fluoroacetic Acid	e	1	10/10,000
149-74-6	Dichloromethylphenylsilane	e	1	1,000
151-38-2	Methoxyethylmercuric Acetate	e	1	500/10,000
151-50-8	Potassium Cyanide	b	10	100
151-56-4	Ethyleneimine	d	1	500
152-16-9	Diphosphoramide, Octamethyl-		100	100
297-78-9	Isobenzan	e	1	100/10,000
297-97-2	Thionazin		100	500
298-00-0	Parathion-Methyl	c	100	100/10,000
298-02-2	Phorate		10	10
298-04-4	Disulfoton		1	500
300-62-9	Amphetamine	e	1	1,000
302-01-2	Hydrazine	d	1	1,000
309-00-2	Aldrin	d	1	500/10,000
315-18-4	Mexacarbate		1,000	500/10,000
316-42-7	Emetine, Dihydrochloride	e, h	1	1/10,000
327-98-0	Trichloronate	e, k	1	500
353-42-4	Boron Trifluoride Compound With Methyl Ether (1:1)	e	1	1,000
359-06-8	Fluoroacetyl Chloride	c, e	1	10
371-62-0	Ethylene Fluorohydrin	c, e, h	1	10
379-79-3	Ergotamine Tartrate	e	1	500/10,000
465-73-6	Isodrin		1	100/10,000
470-90-6	Chlorfenvinfos	e	1	500
502-39-6	Methylmercuric Dicyanamide	e	1	500/10,000
504-24-5	Pyridine, 4-Amino-	h	1,000	500/10,000
505-60-2	Mustard Gas	e, h	1	500
506-61-6	Potassium Silver Cyanide	b	1	500
506-68-3	Cyanogen Bromide		1,000	500/10,000
506-78-5	Cyanogen Iodide	e	1	1,000/10,000
509-14-8	Tetranitromethane		10	500
514-73-8	Dithiazanine Iodide	e	1	500/10,000
534-07-6	Bis(Chloromethyl) Ketone	e	1	10/10,000
534-52-1	Dinitrocresol		10	10/10,000
535-89-7	Crimidine	e	1	100/10,000
538-07-8	Ethylbis(2-Chloroethyl)Amine	e, h	1	500
541-25-3	Lewisite	c, e, h	1	10
541-53-7	Dithiobiuret		100	100/10,000
542-76-7	Propionitrile, 3-Chloro-		1,000	1,000
542-88-1	Chloromethyl ether	d, h	10	100
542-90-5	Ethylthiocyanate	e	1	10,000
555-77-1	Tris(2-Chloroethyl)Amine	e, h	1	100
556-61-6	Methyl Isothiocyanate	b, e	1	500
556-64-9	Methyl Thiocyanate	e	1	10,000
558-25-8	Methanesulfonyl Fluoride	e	1	1,000
563-12-2	Ethion		10	1,000
563-41-7	Semicarbazide Hydrochloride	e	1	1,000/10,000
584-84-9	Toluene 2,4-Diisocyanate		100	500
594-42-3	Perchloromethylmercaptan		100	500
597-64-8	Tetraethyltin	c, e	1	100
614-78-8	Thiourea, (2-Methylphenyl)-	e	1	500/10,000
624-83-9	Methyl Isocyanate	f	1	500
624-92-0	[Removed by 55 FR 5546, February 15, 1990]			
625-55-8				
627-11-2	Chloroethyl Chloroformate	e	1	1,000
630-60-4	Ouabain	c, e	1	100/10,000
639-58-7	Triphenyltin Chloride	e	1	500/10,000
640-19-7	Fluoroacetamide	j	100	100/10,000
644-64-4	Dimetilan	e	1	500/10,000

[Appendix B]

APPENDIX B—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
675-14-9	Cyanuric Fluoride	e	1	100
676-97-1	Methyl Phosphonic Dichloride	b, e	1	100
696-28-6	Phenyl Dichloroarsine	d, h	1	500
732-11-6	Phosmet	e	1	10/10,000
760-93-0	Methacrylic Anhydride	e	1	500
786-19-6	Carbophenothion	e	1	500
814-49-3	Diethyl Chlorophosphate	e, h	1	500
814-68-6	Acrylyl Chloride	e, h	1	100
824-11-3	Trimethylolpropane Phosphite	e, h	1	100/10,000
900-95-8	Stannane, Acetoxytriphenyl-	e, g	1	500/10,000
919-86-8	Demeton-S-Methyl	e	1	500
920-46-7	Methacryloyl Chloride	e	1	100
944-22-9	Fonofos	e	1	500
947-02-4	Phosfolan	e	1	100/10,000
950-10-7	Mephosfolan	e	1	500
950-37-8	Methidathion	e	1	500/10,000
991-42-4	Norbormide	e	1	100/10,000
998-30-1	Triethoxysilane	e	1	500
999-81-5	Chlormequat Chloride	e, h	1	100/10,000
1031-47-6	Triamiphos	e	1	500/10,000
1066-45-1	Trimethyltin Chloride	e	1	500/10,000
1122-60-7	Nitrocyclohexane	e	1	500
1124-33-0	Pyridine, 4-Nitro-, 1-Oxide	e	1	500/10,000
1129-41-5	Metolcarb	e	1	100/10,000
1303-28-2	Arsenic pentoxide	d	1	100/10,000
1306-19-0	Cadmium Oxide	e	1	100/10,000
1314-56-3	Phosphorus Pentoxide	b, e	1	10
1314-62-1	Vanadium Pentoxide		1,000	100/10,000
1314-84-7	Zinc Phosphide	b	100	500
1327-53-3	Arsenous oxide	d, h	1	100/10,000
1397-94-0	Antimycin A	c, e	1	1,000/10,000
1420-07-1	Dinoterb	e	1	500/10,000
1464-53-5	Diepoxybutane	d	10	500
1558-25-4	Trichloro(Chloromethyl)Silane	e	1	100
1563-66-2	Carbofuran		10	10/10,000
1600-27-7	Mercuric Acetate	e	1	500/10,000
1622-32-8	Ethanesulfonyl Chloride, 2-Chloro-	e	1	500
1642-54-2	Diethylcarbamazine Citrate	e	1	100/10,000
1752-30-3	Acetone Thiosemicarbazide	e	1	1,000/10,000
1910-42-5	Paraquat	e	1	10/10,000
1982-47-4	Chloroxuron	e	1	500/10,000
2001-95-8	Valinomycin	c, e	1	1,000/10,000
2032-65-7	Methiocarb		10	500/10,000
2074-50-2	Paraquat Methosulfate	e	1	10/10,000
2097-19-0	Phenylsilatrane	e, h	1	100/10,000
2104-64-5	EPN	e	1	100/10,000
2223-93-0	Cadmium Stearate	c, e	1	1,000/10,000
2231-57-4	Thiocarbazide	e	1	1,000/10,000
2238-07-5	Diglycidyl Ether	e	1	1,000
2275-18-5	Prothoate	e	1	100/10,000
2497-07-6	Oxydisulfoton	e, h	1	500
2524-03-0	Dimethyl Phosphorochloridothioate	e	1	500
2540-82-1	Formothion	e	1	100
2570-26-5	Pentadecylamine	e	1	100/10,000
2587-90-8	Phosphorothioic Acid, O,O-Dimethyl-S-(2-Methylthio) Ethyl Ester	c, e, g	1	500
2631-37-0	Promecarb	e, h	1	500/10,000
2636-26-2	Cyanophos	e	1	1,000
2642-71-9	Azinphos-Ethyl	e	1	100/10,000
2665-30-7	Phosphonothioic Acid, Methyl-,O-(4-Nitrophenyl) O-Phenyl Ester	e	1	500
2703-13-1	Phosphonothioic Acid, Methyl-,O-Ethyl O-(4-(Methylthio)Phenyl) Ester.	e	1	500
2757-18-8	Thallous Malonate	c, e, h	1	100/10,000
2763-96-4	Muscimol		1,000	500/10,000
2778-04-3	Endothion	e	1	500/10,000
3037-72-7	Silane, (4-Aminobutyl)Diethoxymethyl-	e	1	1,000
3254-63-5	Phosphonic Acid, Dimethyl 4-(Methylthio) Phenyl Ester	e	1	500
3569-57-1	Sulfoxide, 3-Chloropropyl Octyl	e	1	500
3615-21-2	Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)-	e, g	1	500/10,000
3689-24-5	Sulfotep		100	500
3691-35-8	Chlorophacinone	e	1	100/10,000
3734-97-2	Amiton Oxalate	e	1	100/10,000
3735-23-7	Methyl Phenkapton	e	1	500
3878-19-1	Fuberidazole	e	1	100/10,000
4044-65-3	Bitoscanate	e	1	500/10,000

[Appendix B]

APPENDIX B—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
4098-71-9	Isophorone Diisocyanate	b, e	1	100
4104-14-7	Phosacetim	e	1	100/10,000
4170-30-3	Crotonaldehyde		100	1,000
4301-50-2	Fluenetil	e	1	100/10,000
4416-66-0	Phenol, 2,2'-Thiobis(4-Chloro-6-Methyl)-	e	1	100/10,000
4835-11-4	Hexamethylenediamine, N,N'-Dibutyl-	e	1	500
5281-13-0				

[Removed by 55 FR 5546, February 15, 1990]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
5344-82-1	Thiourea, (2-Chlorophenyl)-		100	100/10,000
5836-29-3	Coumatetralyl	e	1	500/10,000
6533-73-9	Thallous Carbonate	c, h	100	100/10,000
6923-22-4	Monocrotophos	e	1	10/10,000
7446-09-5	Sulfur Dioxide	e, l	1	500
7446-11-9	Sulfur Trioxide	b, e	1	100
7446-18-6	Thallous Sulfate		100	100/10,000
7487-94-7	Mercuric Chloride	e	1	500/10,000
7550-45-0	Titanium Tetrachloride	e	1	100
7580-67-8	Lithium Hydride	b, e	1	100
7631-89-2	Sodium Arsenate	d	1,000	1,000/10,000
7637-07-2	Boron Trifluoride	e	1	500
7647-01-0	Hydrogen chloride (Gas Only)	e, l	5,000	500
7664-39-3	Hydrogen Fluoride		100	100
7664-41-7	Ammonia	l	100	500
7664-93-9	Sulfuric Acid		1,000	1,000
7697-37-2	Nitric Acid		1,000	1,000
7719-12-2	Phosphorus Trichloride		1,000	1,000
7722-84-1	Hydrogen Peroxide (Conc >52%)	e, l	1	1,000
7723-14-0	Phosphorus	b, h	1	100
7726-95-6	Bromine	e, l	1	500
7778-44-1	Calcium arsenate	d	1	500/10,000
7782-41-4	Fluorine	k	10	500
7782-50-5	Chlorine		10	100
7783-00-8	Selenious Acid		10	1,000/10,000
7783-06-4	Hydrogen Sulfide	l	100	500
7783-07-5	Hydrogen Selenide	e	1	10
7783-60-0	Sulfur Tetrafluoride	e	1	100
7783-70-2	Antimony Pentafluoride	e	1	500
7783-80-4	Tellurium Hexafluoride	e, k	1	100
7784-34-1	Arsenous trichloride	d	1	500
7784-42-1	Arsine	e	1	100
7784-46-5	Sodium arsenite	d	1	500/10,000
7786-34-7	Mevinphos		10	500
7791-12-0	Thallous Chloride	c, h	100	100/10,000
7791-23-3	Selenium Oxychloride	e	1	500
7803-51-2	Phosphine		100	500
8001-35-2	Camphechlor	d	1	500/10,000
8065-48-3	Demeton	e	1	500
10025-73-7	Chromic Chloride	e	1	1/10,000
10025-87-3	Phosphorus Oxychloride	d	1,000	500
10026-13-8	Phosphorus Pentachloride	b, e	1	500
10028-15-6	Ozone	e	1	100
10031-59-1	Thallium Sulfate	h	100	100/10,000
10102-18-8	Sodium Selenite	h	100	100/10,000
10102-20-2	Sodium Tellurite	e	1	500/10,000
10102-43-9	Nitric Oxide	c	10	100
10102-44-0	Nitrogen Dioxide		10	100
10124-50-2	Potassium arsenite	d	1	500/10,000
10140-87-1	Ethanol, 1,2-Dichloro-, Acetate	e	1	1,000
10210-68-1	Cobalt Carbonyl	e, h	1	10/10,000
10265-92-6	Methamidophos	e	1	100/10,000
10294-34-5	Boron Trichloride	e	1	500
10311-84-9	Dialifor	e	1	100/10,000
10476-95-6	Methacrolein Diacetate	e	1	1,000
12002-03-8	Paris Green	d	1	500/10,000
12108-13-3	Manganese, Tricarbonyl Methylcyclopentadienyl	e, h	1	100
13071-79-9	Terbufos	e, h	1	100
13171-21-6	Phosphamidon	e	1	100
13194-48-4	Ethoprophos	e	1	1,000
13410-01-0	Sodium Selenate	e	1	100/10,000
13450-90-3	Gallium Trichloride	e	1	500/10,000
13463-39-3	Nickel carbonyl-	d	10	1
13463-40-6	Iron Pentacarbonyl	e	1	100

[Appendix B]

APPENDIX B—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
13494-80-9	Tellurium	e	1	500/10,000
14167-18-1	Salcomine	e	1	500/10,000
15271-41-7	Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-(((Methylamino)Carbonyl)Oxy)Imino)-, (1s-(1-alpha, 2-beta, 4-alpha, 5-alpha, 6E))-	e	1	500/10,000
16752-77-5	Methomyl	h	100	500/10,000
17702-41-9	Decaborane(14)	e	1	500/10,000
17702-57-7	Formparanate	e	1	100/10,000
19287-45-7	Diborane	e	1	100
19624-22-7	Pentaborane	e	1	500
20830-75-5	Digoxin	e, h	1	10/10,000
20859-73-8	Aluminum Phosphide	b	100	500
21548-32-3	Fosthietan	e	1	500
21609-90-5	Leptophos	e	1	500/10,000
21908-53-2	Mercuric Oxide	e	1	500/10,000
21923-23-9	Chlorthiophos	e, h	1	500
22224-92-6	Fenamiphos	e	1	10/10,000
23135-22-0	Oxamyl	e	1	100/10,000
23422-53-9	Formetanate Hydrochloride	e,h	1	500/10,000
23505-41-1	Pirimifos-Ethyl	e	1	1,000
24017-47-8	Triazofos	e	1	500
24934-91-6	Chlormephos	e	1	500
26419-73-8	Carbamic Acid, Methyl-, O-(((2,4-Dimethyl-1, 3-Dithiolan-2-yl)Methylene)Amino)-.	e	1	100/10,000
26628-22-8	Sodium Azide (Na(N_3))	b	1,000	500
27137-85-5	Trichloro(Dichlorophenyl)Silane	e	1	500
28347-13-9	Xylylene Dichloride	e	1	100/10,000
28772-56-7	Bromadiolone	e	1	100/10,000
30674-80-7	Methacryloyloxyethyl Isocyanate	e, h	1	100
39196-18-4	Thiofanox		100	100/10,000
50782-69-9	Phosphonothioic Acid, Methyl-, S-(2-(Bis(1-Methylethyl)Amino)Ethyl) O-Ethyl Ester	e	1	100
53558-25-1	Pyriminil	e, h	1	100/10,000
58270-08-9	Zinc, Dichloro(4,4-Dimethyl-5((((Methylamino)Carbonyl)Oxy)Imino)Pentanenitrile)-, (T-4)-	e	1	100/10,000
62207-76-5	Cobalt, ((2,2'-(1,2-Ethanediylbis(Nitrilomethylidyne))Bis(6-Fluoro-phenolato))(2-)-N,N',O,O')-	e	1	100/10,000

*Only the statutory or final RQ is shown. For more information, see 40 CFR Table 302.4.

Notes:
a This chemical does not meet acute toxicity criteria. Its TPQ is set at 10,000 pounds.
b This material is a reactive solid. The TPQ does not default to 10,000 pounds for non-powder, non-molten, non-solution form.
c The calculated TPQ changed after technical review as described in the technical support document.
d Indicates that the RQ is subject to change when the assessment of potential carcinogenicity and/or other toxicity is completed.
e Statutory reportable quantity for purposes of notification under SARA sect 304(a)(2).
f The statutory 1 pound reportable quantity for methyl isocyanate may be adjusted in a future rulemaking action.
g New chemicals added that were not part of the original list of 402 substances.
h Revised TPQ based on new or re-evaluated toxicity data.
j TPQ is revised to its calculated value and does not change due to technical review as in proposed rule.
k The TPQ was revised after proposal due to calculation error.
l Chemicals on the original list that do not meet the toxicity criteria but because of their high production volume and recognized toxicity are considered chemicals of concern ("Other chemicals").

APPENDIX F

TRAINING

Four types of training provided at RMA are described in this section: emergency response training conducted on an installation-wide basis; training in ISCP and SPCC Plan procedures conducted at the division level; SPCC Plan familiarization, conducted at the unit/activity level; and FPPB training required of all employees of the FPPB.

A. INSTALLATION-WIDE RESPONSE TRAINING

Training provided to all uniformed and civilian personnel at RMA focuses on the following: the characteristics of hazardous substances; safe handling and storage procedures; emergency response; and regulatory compliance.

Twice each year, the IOSC must plan and execute an installation-wide exercise in order to train all Army, contractor, and tenant personnel in emergency response procedures. At least one of these exercises must involve testing of the alarms and RMA evacuation, and at least one of these training exercises must include participation of off-post assistance sources.

B. INSTALLATION SPILL CONTINGENCY PLAN AND SPILL PREVENTION, CONTROL AND COUNTER-MEASURE PLAN PROCEDURES TRAINING

Training in the implementation of SPCC Plan and ISCP procedures is conducted at the division level. RMA provides training for uniformed and civilian personnel employed at Army facilities. Contractors and tenants are responsible for the training of their employees.

Training provides descriptions of the physical components of the appropriate system(s); the technical program; general and preventative maintenance procedures; contingency procedures; protective clothing requirements; monitoring procedures; potential hazards; and administrative procedures. Current training procedures have resulted in the safe operation of Army facilities by both uniformed and civilian personnel.

C. SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN FAMILIARIZATION

Personnel who work in and around the areas identified in this plan will be familiar with and will understand the contents of and requirements for the SPCC Plan. Instruction concerning the following subjects will be provided by RMA. Instruction on the operation and maintenance of equipment, storage, and transfer facilities to prevent harmful discharges of oil or hazardous substances will be provided. Instruction on applicable pollution control laws, rules and regulations as well as basic and material-specific response procedures for spill events will also be provided.

D. FIRE PREVENTION AND PROTECTION BRANCH TRAINING

The FPPB is responsible for spill cleanup activities. The FPPB training program is extensive, involving 3019 man-hours of training on a division-wide basis during an average year, or 216 hours of training per firefighter for an average of 14 employees.

New FPPB employee indoctrination is conducted on a biweekly basis whenever new employees are hired. Orientation and indoctrination consists of fire prevention lectures, demonstration, drills and movies.

The continuous FPPB training program is based on an annual Master Training Schedule which establishes monthly training topics. The Master Training Schedule requires a minimum of four hours of training per week for each firefighter, exclusive of Chemical Accident and Incident Control procedures. Monthly training schedules are prepared on the basis of the master schedule to list weekly subjects, detailed text references, and instructors.

References and manuals used in FPPB training include International Fire Service Training Association manuals; Army Field and Training Manuals; Army Technical Bulletins; National Fire Protection Association materials; and various other trade publications. The FPPB is a member of the Tri-County Fireman's Association (TCFA) and uses TCFA films, slides, and tapes in all phases of the FPPB training and general plant employee education programs.

Classroom instruction and outside drills are used to promote maximum proficiency in all areas of firefighter involvement. Maximum operational efficiency within the FPPB is maintained by ensuring that all firefighters are cross-trained with respect to the various FPPB duties and responsibilities.

Training schedules are flexible to allow for the need to address changes in procedures or regulations; operations and maintenance requirements for new equipment; fire critiques; etc. The training program is continuously evaluated to ascertain the effectiveness of the program, proficiency of instructors, and knowledge and competence of individual firefighters.

APPENDIX G

SAFETY PRECAUTIONS FOR KNOWN HAZARDOUS SUBSTANCES

MATERIAL SAFETY DATA SHEETS

Safety precautions for hazardous substances used or stored at RMA are provided in Material Safety Data Sheets (MSDSs) located in the Safety Office, ECC, and at the FPPB. Specific MSDSs should also be kept in each location or Supervisor's office when the chemical is used.

APPENDIX H

PUBLIC AFFAIRS GUIDELINES

1. Purpose.

   To prescribe policies, delineate responsibilities and provide guidance in carrying out the Rocky Mountain Arsenal (RMA) Public Affairs mission in the event of a chemical accident/incident (CAI) or other emergency situation.

2. Scope.

   This procedure is applicable to the Public Affairs Officer or the designated alternate.

3. Policy.

   As directed by the Program Manager (PM) for Rocky Mountain Arsenal (PMRMA), the policy is to furnish to the public the information it has the right and need to know for the protection of health and welfare, and/or preclude unfounded concern.

4. Procedures.

   Upon notification of an accident/incident, the Public Affairs Office will:

   a. Report to the Emergeny Control Center (ECC) to get an estimate of the situation.

   b. Alert and brief the Army Material Command/Public Affairs Office (AMC/PAO) on the situation.

   c. Notify Fitzsimons Army Medical Center (FAMC) Emergency Room physician (361-8031) if casualties are involved.

   d. Ensure that any media personnel arriving at RMA are directed to the press staging area in the Law Enforcement and Security Branch parking lot. Media personnel will not be allowed any other access to RMA unless authorized by the PM or his deputy. The Public Affairs Officer will coordinate with the PM or his deputy when media personnel are allowed access as to when, where, and other conditions the situation may require.

e. Prepare releases.

f. News statement to media personnel will be made at the press staging area or, if necessary, the Joint Administrative Record Documentation Facility (JADEF) office will be used as a press briefing room. All media personnel will be escorted by a PAO representative.

g. Maintain a file of statements and news releases.

5. Responsibilities.

The Public Affairs Officer will:

a. Report to the ECC.

b. Upon arrival at the ECC, get details of the situation and prepare to respond.

(1) Accidents/Incidents.

Following are some quick procedural points to follow as PAO. They are:

(a) PAO or alternate will remain in ECC and gather the necessary information for a possible news release or reply to inquiry. If the incident POSES NO THREAT to the off-post or on-post public in general, the initial news release will be written in accordance with general samples provided in AR 360-5. Ensure that the PM or his deputy approves recommended release prior to releasing to the media.

(b) If the situation DOES POSE A DANGER to the off-post or on-post public, the following will be done:

[1] Gather initial details and prepare an announcement.

[2] Get the PM or his representative's approval and immediately make assigned notifications. In addition, notify off-post emergency officials.

[3] Get the names of the casualities and next-of-kin (NOK) as soon as possible. The NOK information can be obtained from supervisor's 7B cards. Verify this information with CPO at Fitzsimons (361-3206). Advise the PM who NOK are and recommend that they be notified, in person, as to the causalities condition. REMEMBER, NO NAMES CAN BE RELEASED UNTIL NEXT-OF-KIN HAVE BEEN NOTIFIED.

c. Respond to news media and other inquiries within the following limitations:

(1) The PM or his designated representative will release information immediately to the public if the public health, safety, or welfare would be threatened by delaying such a release.

6. General.

Other notifications include the Environmental Protection Agency (EPA); Mr. Walker's Office; AMC/PAO; MGA, Inc. (Shell); Jaci Cran; Kip Cheroutes; Alan Salazar; United States Fish and Wildlife Service (USFWS); (all phone numbers are located in the Public Affairs Emergency Hand Book located in the Public Affairs Office.)

APPENDIX I

REFERENCES

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